Notifiable Diseases in Alberta

2004
ANNUAL
REPORT

Alberta 2005 Alberta Centennial

Acknowledgements

Prepared by	Kimberley Simmonds, Epidemiologist
Contributions	Meghan Pehowich, Project Coordinator
	Rosa Orleski Business Information Analyst
Statistical support	Don Schopflocher, Senior Biostatistician

This document was prepared under the guidance of Disease Control and Prevention Branch with review from senior staff of Health Surveillance Branch and the Provincial Health Office.

For more information contact:

Alberta Health and Wellness
23rd floor, Telus Plaza North Tower
10025 Jasper Avenue
Edmonton, AB
CANADA
T5J 1S6

Phone: 1-780-427-7687

ISSN: 1715-5096

Table of Contents

Introduction 3

Executive Summary 5

Blood Borne Pathogens/Creutzfeldt-Jakob Disease (CJD)

- Creutzfeldt-Jakob Disease (CJD) 7
- Hepatitis B 8
- Hepatitis C 10
- Human Immunodeficiency Virus (HIV) Infection 12

Direct Contact and Respiratory Diseases

- Congenital Cytomegalovirus 15
- Invasive Group A Streptococcal Disease 16
- Leprosy 18
- Tuberculosis 19
- Varicella-zoster (Shingles) 21

Enteric Illnesses

- Amoebiasis 23
- Campylobacteriosis 25
- Cryptosporidiosis 27
- Cyclosporiasis 29
- Enterohaemorrhagic *Escherichia coli* (EHEC) O157:H7 30
- Giardiasis 32
- Hepatitis A 34
- Listeriosis 36
- Salmonellosis 38
- Shigellosis 40
- Typhoid/Paratyphoid 42
- *Vibrio parahaemolyticus* 45
- Yersiniosis 46

Environmental and Zoonotic Illnesses

- Brucellosis 49
- Dengue Fever 50
- Hantavirus Pulmonary Syndrome (HPS) 51
- Legionellosis 52
- Lyme Disease 53
- Malaria 54
- Q Fever 56
- Rickettsial Infections 57
- West Nile Infection 58

Sexually Transmitted Infections
Chlamydia Infection 59
Gonorrheal Infection 61
Infectious Syphilis 63
Mucopurulent Cervicitis (MPC) 65
Non-Gonococcal Urethritis (NGU) 67

Syndromic Illnesses
Haemolytic Uremic Syndrome 69

Vaccine Preventable Diseases
Influenza A/B 71
Invasive *Haemophillus influenza* type B (Hib) 72
Invasive Meningococcal Disease (IMD) 73
Invasive Pneumococcal Disease (IPD) 75
Mumps 77
Pertussis 78
Rubella 80
Varicella-zoster (Chickenpox) 81

Appendix A: 2003 Immunization Coverage Rates 83

Appendix B: Statistical Tables 93

Glossary of Terms 125

106-02096/

Introduction

Alberta Health and Wellness

Mission:
Provide leadership and work collaboratively with partners to help Albertans be healthy and respond to opportunities and change. Support individuals, families and service providers in making the best decisions about their health.

Public Health Division

Mandate:
Provide leadership in disease control and prevention, wellness strategy development and health surveillance. Facilitates coordinated approaches to improving public health and medical care through public health policy development.

The Public Health Division at Alberta Health and Wellness is comprised of four branches that work together to support the division's mandate. **Disease Control and Prevention** - Contributes to legislation, policy, standards and clinical practice guidelines, and provides assistance to healthcare workers in their interpretation. This branch is responsible for Alberta's notifiable disease surveillance, many environmental health programs in the province, and for the adult and childhood immunization programs. **Health Surveillance** - Major functions include tracking trends, detecting emerging issues and associations between a wide range of risk factors, analyzing health determinants and health outcomes, and monitoring major disease prevention programs. **Population Health Strategies** - Develops strategies, supports initiatives and provides input into legislation, policy and standards in the areas of health promotion, disease and injury prevention and mental health. **Provincial Health Office** - Provides provincial leadership in the prevention and control of diseases and other conditions of public health importance and provides public health policy, advice and recommendations to the minister of Alberta Health and Wellness, the department and the regional health authorities.

Notifiable Diseases in Alberta

Diseases that are notifiable in Alberta are defined in the communicable disease regulations for the province. Under the *Public Health Act*, cases of these diseases must be reported to provincial public health officials. These diseases are notifiable because they have one or more of the following characteristics: they cause serious morbidity, they have the potential to infect many people or they can be controlled or prevented by appropriate interventions. There are several types of notifiable communicable disease including enteric illnesses, vaccine preventable diseases and sexually transmitted infections, blood-borne pathogens, respiratory illnesses, syndromic illnesses, environmental and zoonotic illnesses.

There is a lack of reporting for those notifiable diseases that are not lab based and require reporting by physicians. This results in an underestimation of the true disease incidence. Diseases associated with serious morbidity and mortality, such as those reportable by fastest means possible are more likely to have been reported and therefore have a more accurate estimate of the true disease incidence than less serious diseases that are more common.

Epidemiologic Measures

Data for incidence measures of infectious diseases in Alberta is obtained from communicable diseases databases at Alberta Health and Wellness. The national incidence measures are obtained from the Public Health Agency of Canada.

Incidence measures for communicable diseases are not age or sex adjusted. As a result, rates may be confounded due to differences in population structure. Where time trends are graphed, a trend line has been drawn for Canadian rates. Linear regression is used to determine the trend line. Alberta rates do not have a trend line as the rates are less robust than the Canadian rates.

This report contains aggregate data and general disease descriptors. Diseases with no cases in 2004 are not reported. Diseases for which there are five or fewer cases do not have age specific or regional health authority (RHA) specific graphs, tables or maps.

The mapping method presented in this document is designed to account for the population size of a RHA and its effect on the rate stability associated with that region. Rates will be more unstable for a small population than for a larger population. Mapping method consists of the following steps:

1. Calculate the rates by RHA.
2. Calculate the rate for the province for the same time period.
3. Calculate standard error of the rate.
4. Calculate the regional specific standard scores.

$$\frac{\text{RHA rate - provincial rate}}{\text{RHA standard error}}$$

5. Determine the appropriate colour for each RHA based on the standard score.

Score	Interpretation	Colour
> 2	Significantly Higher than Provincial Average	Red
1 to 2	Higher than Provincial Average	Orange
1 to -1	Average	Yellow
-1 to -2	Lower than Provincial Average	Light Green
< -2	Significantly Lower than Provincial Average	Dark Green

6. Generate map using the same categories for each RHA as listed in step 5.

Executive Summary

Blood Borne Pathogens/CJD

The rate of hepatitis C (50.6 cases per 100,000) in Alberta continues to decrease yet remains higher than the Canadian rate trend. Both hepatitis B and HIV infection rates remain fairly consistent with previous years (1.4 and 5.4 cases per 100,000 respectively). The rate of HIV infection in Alberta remains lower than the Canadian rate trend.

No confirmed cases of CJD were reported in 2004.

Direct Contact and Respiratory Diseases

Invasive Group A Streptococcal disease rates continue to rise and remain higher than the Canadian rate trend. The cause of this remains unknown at this time. The 2004 Alberta rate of tuberculosis (3.4 cases per 100,000) remains low compared to the Canadian rate, but the proportion of young immigrant cases appears to be increasing each year.

Enteric Illnesses

The geographic distribution of most of the enteric illnesses is disparate across the province. The highest rates of disease are in the southern regional health authorities. The Alberta rate of *E. coli* O157:H7 in 2004 is higher than in the previous two years. This is due to a single outbreak that accounted for at least 14 per cent (40/288) of cases reported in 2004. The rate of hepatitis A in Alberta in 2004 was higher than previous years (2.1 cases per 100,000).

Environmental and Zoonotic Illnesses

The rate of most zoonotic illnesses remains low in Alberta. Only one case of each of the following diseases were reported in 2004: dengue fever, hantavirus pulmonary syndrome, legionellosis, or West Nile infection were reported in 2004. The one case of West Nile fever was reported acquired outside Alberta as were two cases of Lyme disease.

Sexually Transmitted Infections

The infection rate of chlamydia, gonorrhea and infectious syphilis is a concern. The rates of all three of these diseases continue to rise. Chlamydia is the most commonly reported notifiable disease in Alberta with 8,339 cases reported in 2004. The infection rates for both chlamydia and gonorrhea are highest among young adults and those living in Northern Alberta. The rate of infectious syphilis is highest in Capital Health where a sustained outbreak continued throughout 2004.

Syndromic Diseases

The rate of haemolytic uremic syndrome in Alberta continues to rise.

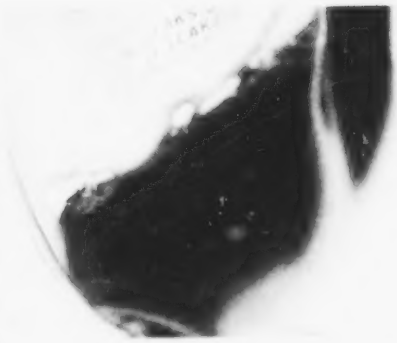
Vaccine Preventable Diseases

Rates of most vaccine preventable diseases are low or are decreasing. Since universal infant meningococcal immunization began in 2002, the disease incidence rate of invasive meningococcal disease (IMD) has dropped to below the Canadian rate trend. Prior to routine immunization, Alberta had IMD rates that were higher than the Canadian rate.

The rate of Invasive Pneumococcal Disease (IPD) did not decrease in 2004, but the age distribution has changed; fewer infants (those less than one year of age) are becoming ill with IPD.

The rate of pertussis in 2004 was significantly higher than the previous three years. This is the result of several outbreaks in various regional health authorities.

Blood Borne Pathogens



- Creutzfeldt-Jakob Disease (CJD)
- Hepatitis B
- Hepatitis C
- Human Immunodeficiency Virus (HIV) Infection

Creutzfeldt - Jakob Disease (CJD)

Creutzfeldt-Jakob disease (CJD) is a type of human transmissible spongiform encephalopathy (TSE). TSEs occur in both animals and humans. They cause the central nervous system to degenerate, resulting in the formation of sponge-like holes in the brain. The agent that causes CJD is thought to be an abnormal prion. Prions are normal cellular proteins that are present in many organs and tissues, including the brain and spinal cord of healthy humans and animals. Diagnosis of CJD can only be definitively confirmed through autopsy. TSEs are always fatal and there is no known treatment or prevention.

Incidence Rate

CJD is extremely rare, and no more than 4 probable cases have ever been reported in a single year in Alberta. Only 4 cases have been definitively confirmed since 2000.

No confirmed cases of CJD were reported in 2004.

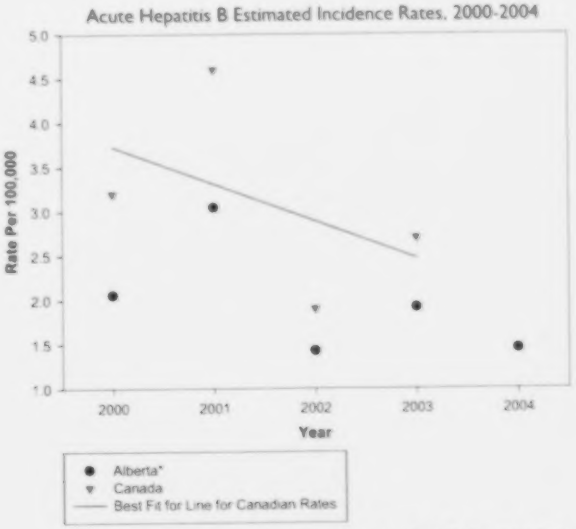
Hepatitis B (Acute)

Hepatitis B is caused by a DNA virus and is transmitted through blood, blood products and body fluids. About half of individuals with acute hepatitis B never experience symptoms. Others experience symptoms such as fatigue, vomiting, headache, fever, loss of appetite, and yellowing skin and eyes (jaundice). These symptoms may last from one to four weeks, but it may take as long as six months before the person feels well again.

Incidence Rate

The incidence rate of acute hepatitis B has been decreasing both in Alberta and throughout Canada. This decrease is largely attributable to the grade 5 hepatitis B immunization program initiated in 1995 in Alberta. The 2004 rate is the lowest in the last five years. Only 46 cases of acute hepatitis B were reported in Alberta in 2004.

Acute Hepatitis B Estimated Incidence Rates, 2000-2004

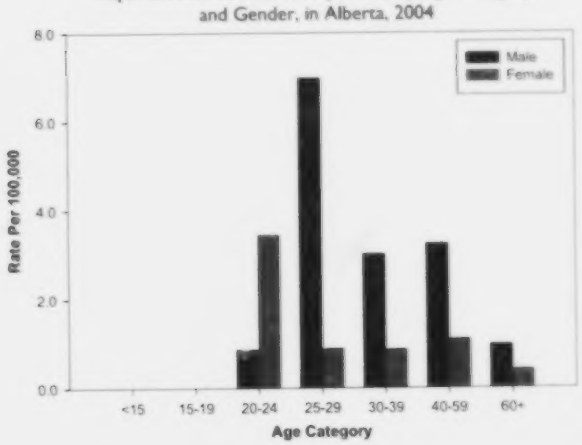


*Alberta rates are considered accurate to within 0.6 cases per 100,000 19 times out of 20

Age and Gender Distribution

Acute hepatitis B is significantly more commonly reported among males than females, and it is most common among males 25 to 29 years of age.

Reported Acute Rates of Hepatitis B by Age Category and Gender, in Alberta, 2004



Geographic Distribution

In 2004, Palliser Health Region had the highest rate of acute hepatitis B infection with a rate of 4.0 cases per 100,000. With the standard error of the rate factored in, Capital Health had the only rate that was significantly higher than the provincial average. Capital Health reported 28 cases of acute hepatitis B in 2004.

Acute Hepatitis B Rates by Regional Health Authority, 2004

1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

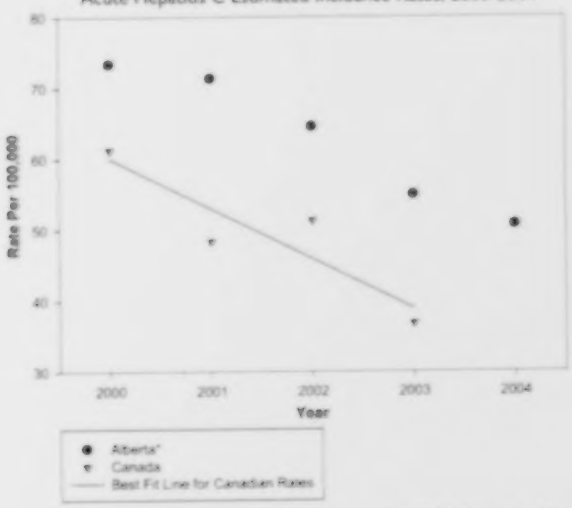
Hepatitis C

Hepatitis C is caused by a ribonucleic acid (RNA) virus. It is transmitted through blood and other body fluids such as occurs when sharing needles. This disease attacks the liver and can cause cirrhosis and other liver diseases. Initially cases are asymptomatic and vague symptoms, such as anorexia and abdominal discomfort, can appear later.

Incidence Rate

The annual rate of newly diagnosed hepatitis C cases decreased over the past five years. Despite the decrease, the Alberta rate of hepatitis C remains higher than the national rate. With 1,610 cases diagnosed in 2004, hepatitis C is the second most commonly reported notifiable disease in Alberta after chlamydia.

Acute Hepatitis C Estimated Incidence Rates, 2000-2004

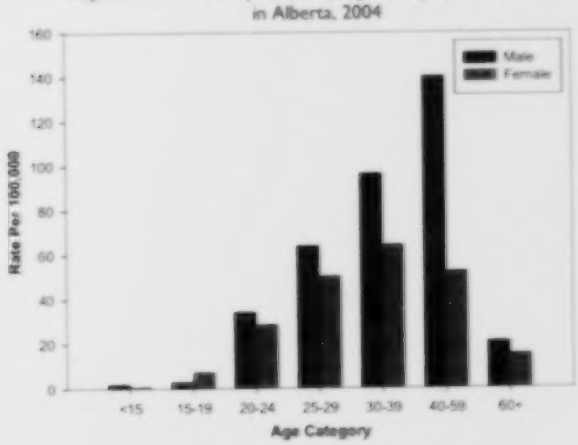


*Alberta rates are considered accurate to within 3.1 cases per 100,000 19 times out of 20

Age and Gender Distribution

Hepatitis C is most commonly diagnosed among males 40 to 59 years of age. The rate of hepatitis C diagnosis in men increases with age up to age 60. In females, the reported infection rate peaks among those 30 to 39 years of age. The age at diagnosis is likely older than the age at the time of infection because of delays in diagnosis. Overall, females are less likely to be diagnosed with hepatitis C than males.

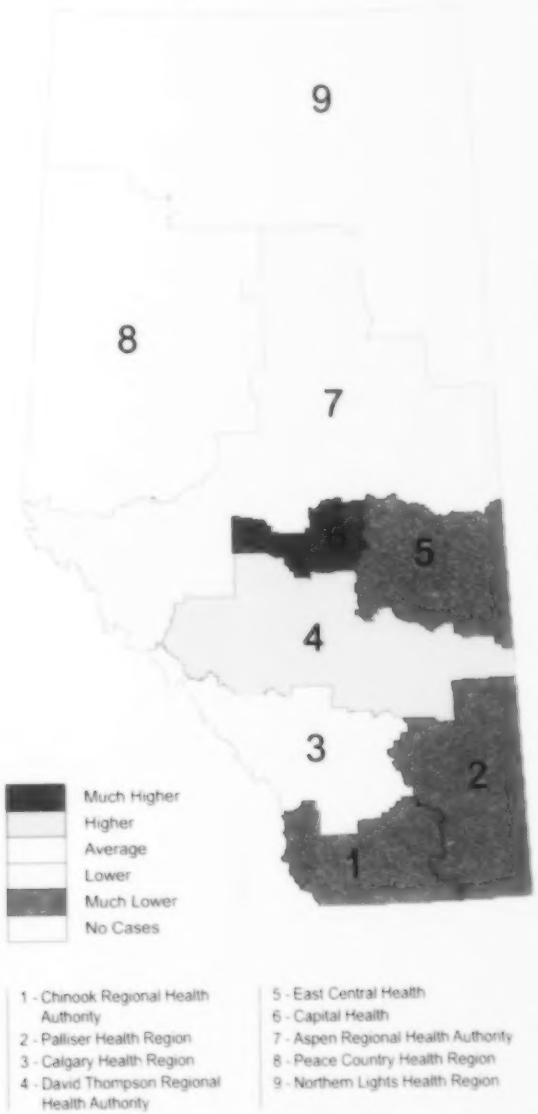
Reported Rates of Hepatitis C by Age Category and Gender, in Alberta, 2004



Geographic Distribution

The geographical distribution of hepatitis C cases varies widely across the province. The rate range in 2004 was 26.3 cases per 100,000 (in East Central Health) to 59.0 cases per 100,000 (in Capital Health).

Hepatitis C Rates by Regional Health Authority, 2004



1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

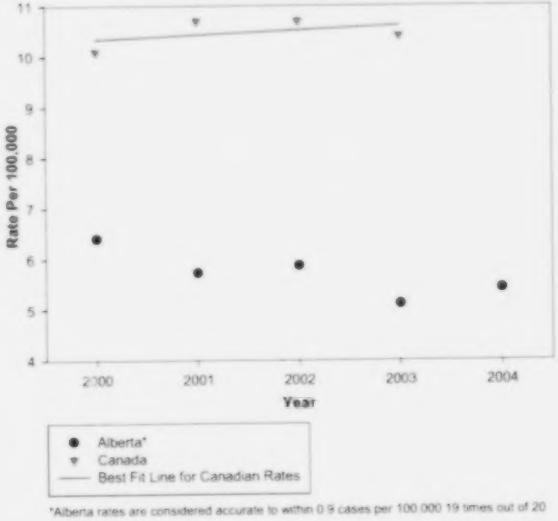
Human Immunodeficiency Virus (HIV) Infection

Human Immunodeficiency Virus is a retrovirus. When HIV infects the body, it weakens the immune system by destroying certain immune system cells. When the immune system becomes damaged beyond repair, infections and cancers overwhelm the body, and the person is diagnosed with AIDS. HIV is transmitted through contact with blood and other body fluids and can be spread through unprotected sexual contact. HIV can be transmitted from HIV infected pregnant women to their unborn infants.

Incidence Rate

The rate of HIV infection in Alberta has remained fairly constant over the past five years. The Alberta HIV infection rate is lower than the national rate. Over the past five years, the Alberta rate has fluctuated very little; the maximum and minimum rates vary by only one case per 100,000. There were 172 cases of HIV diagnosed in 2004.

HIV Estimated Incidence Rates, 2000-2004

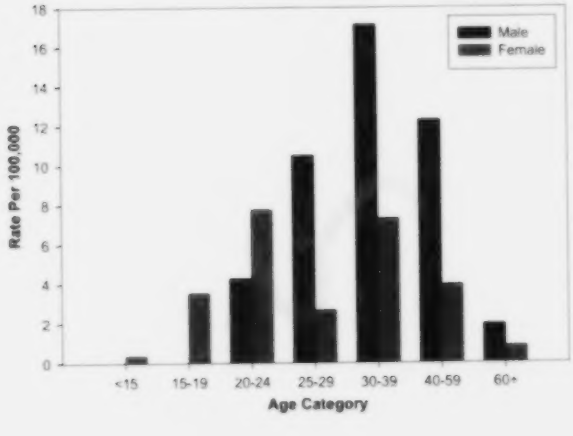


*Alberta rates are considered accurate to within 0.9 cases per 100,000 19 times out of 20

Age and Gender Distribution

The reported infection rate in males and females increases into adulthood and declines after 40 years of age. The highest infection rate for males is among those who are 30 to 39 years of age. In females the highest infection rate is between 20 and 24 years of age. Males are more likely to be infected than females.

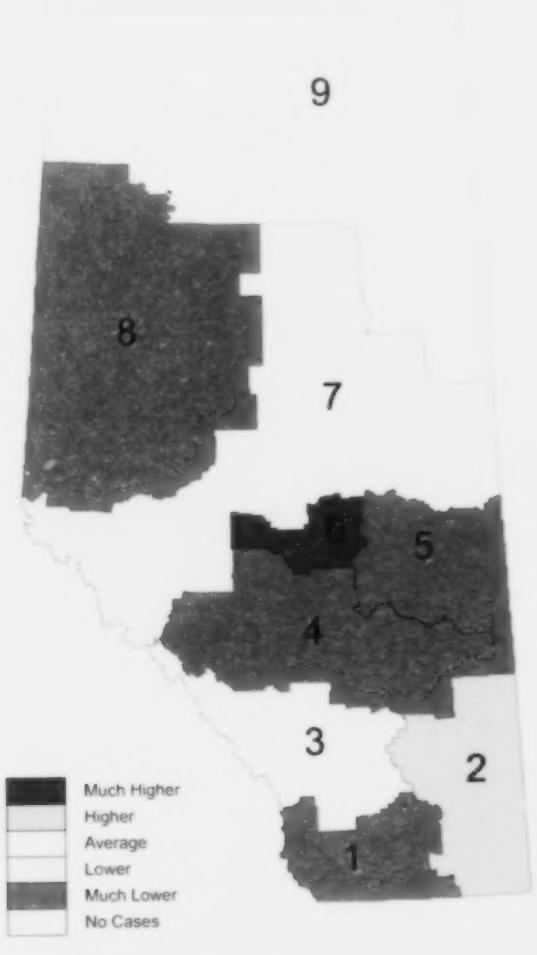
Reported Rates of HIV by Age Category and Gender, in Alberta, 2004



Geographic Distribution

In 2004, the HIV infection rate was highest in the Palliser Health Region with a rate of 12 cases per 100,000. With standard error factored in, Capital Health has a rate much higher than the provincial average, while Palliser Health Region has a rate only slightly higher. The higher rate for Palliser Health Region appears to be due to cases from endemic HIV countries.

HIV Rates by Regional Health Authority, 2004



1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

Direct Contact and Respiratory Diseases

- Congenital Cytomegalovirus
- Invasive Group A Streptococcal Disease
- Leprosy
- Tuberculosis
- Varicella Zoster

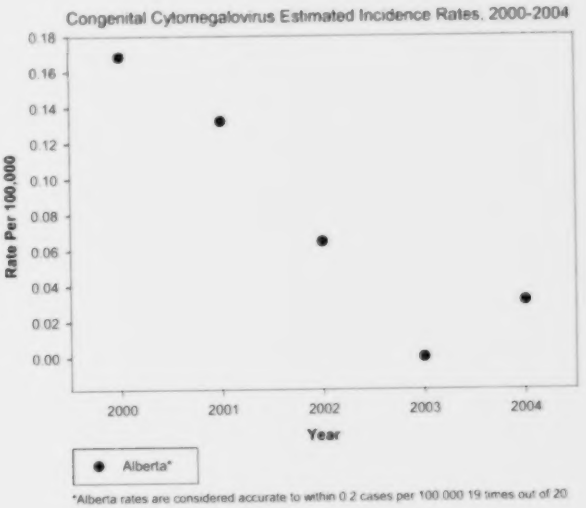
Congenital Cytomegalovirus

Cytomegalovirus (CMV) is a DNA virus. Approximately 1 per cent of all newborn children are infected with CMV prenatally, making CMV the most common congenital infection. Deafness is one of the major complications resulting from CMV infection. The baby may be infected in utero from maternal infection. CMV is transmitted by intimate exposure with infectious tissues, excretions, and secretions.

Incidence Rate

The rate of congenital CMV in Alberta has been decreasing over the last five years. The Alberta rate is 0.03 cases per 100,000 and only one case was reported in 2004. Congenital Cytomegalovirus is not nationally notifiable.

As only one case of CMV was reported in 2004, no geographic distribution of the case is reported here.



*Alberta rates are considered accurate to within 0.2 cases per 100,000 19 times out of 20 (CMV is not under national surveillance)

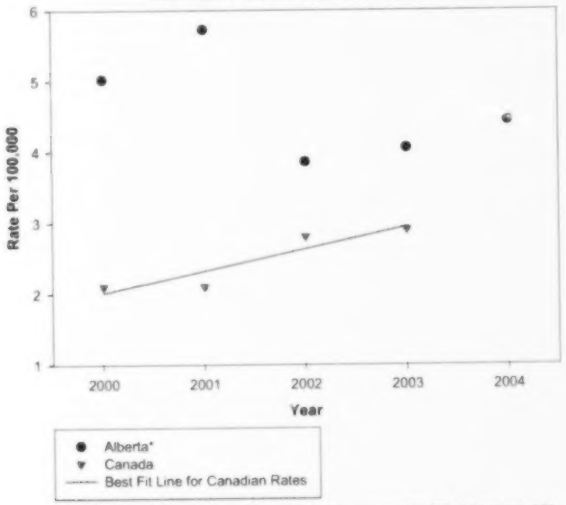
Invasive Group A Streptococcal Disease (iGAS)

Invasive Group A Streptococcal (iGAS) disease is caused by the bacterium *Streptococcus pyogenes*. Only a few people who come in contact with a virulent strain of Group A streptococcal bacteria develop invasive disease. The most frequently encountered illnesses caused by this bacterium are sore throat (strep throat) and skin infections, but severe invasive diseases including necrotizing fasciitis (also known as flesh-eating disease), myositis, or meningitis do occur. Transmission is through respiratory droplets of an infected person. The invasive form of Group A streptococcal bacteria is considered an emerging disease.

Incidence Rate

The rate of iGAS has remained fairly constant since 2000, with a range of 3.9 to 5.7 cases per 100,000. There were 141 cases reported in 2004 (4.4 cases per 100,000).

Invasive Group A Streptococcal Disease (iGAS)
Estimated Incidence Rates, 2000-2004

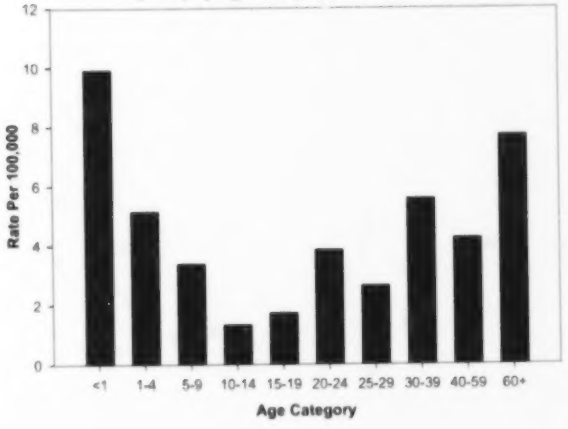


*Alberta rates are considered accurate to within 0.9 cases per 100,000 19 times out of 20

Age Distribution

The age distribution of iGAS infection is highest among those less than one year of age, followed by those 60 years and older. It is not uncommon for the very young and older individuals to have a higher incidence of invasive disease than the general population. In 2004, there were four cases of iGAS reported in infants. None of the infants died from the disease.

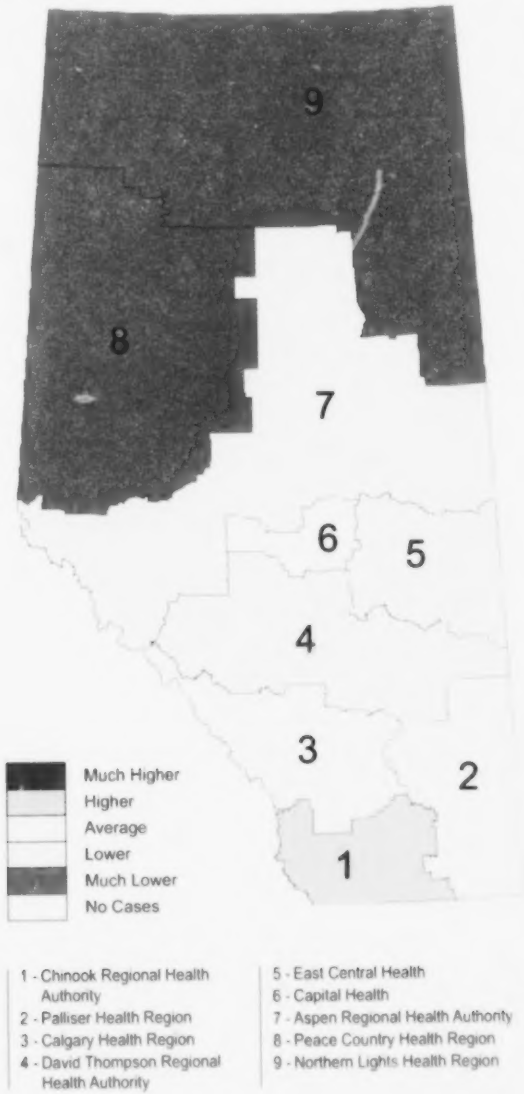
Reported Rates of Invasive Group A Streptococcal Disease (iGAS) by Age Category, in Alberta, 2004



Geographic Distribution

The 2004 rate of iGAS was highest in the Chinook Regional Health Authority. The rates of all other regional health authorities are approximately equal except in the two northern regional health authorities, where the rates were significantly lower than the provincial average.

Invasive Group A Streptococcal Disease Rates by Regional Health Authority, 2004



1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

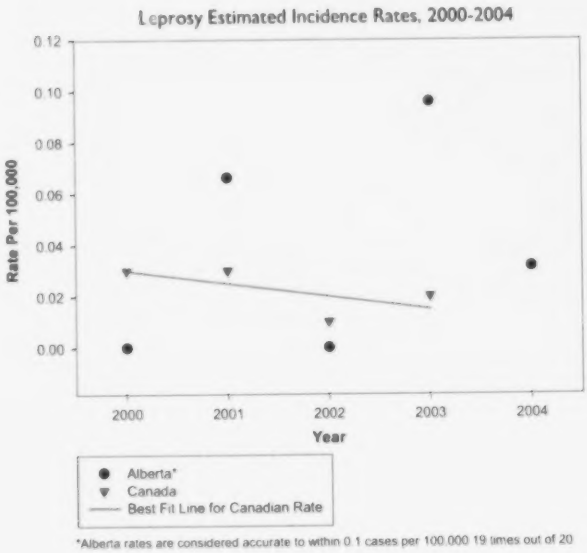
Leprosy

Leprosy is caused by *Mycobacterium leprae*, acid-fast bacillus bacteria. Leprosy is a chronic infectious disease predominantly involving the skin, peripheral nerves and the upper airway. There is a spectrum of symptoms of leprosy. Lepromatous leprosy has numerous macules, papules, nodules, and plaques with bilaterally symmetrical distribution. Borderline leprosy has skin lesions. Humans are the only significant reservoir. The mode of transmission remains unclear, but it is likely due to close contact with an infected person. It is not highly communicable.

Incidence Rate

The Alberta rate of leprosy hovers around the Canadian rate trend. All Alberta cases of leprosy were acquired outside of Canada. The 2004 Alberta leprosy rate was 0.03 cases per 100,000 with one case reported in an adult male.

As only one case of leprosy was reported in 2004, no age or geographic distribution of the case is reported here.



*Alberta rates are considered accurate to within 0.1 cases per 100,000 19 times out of 20

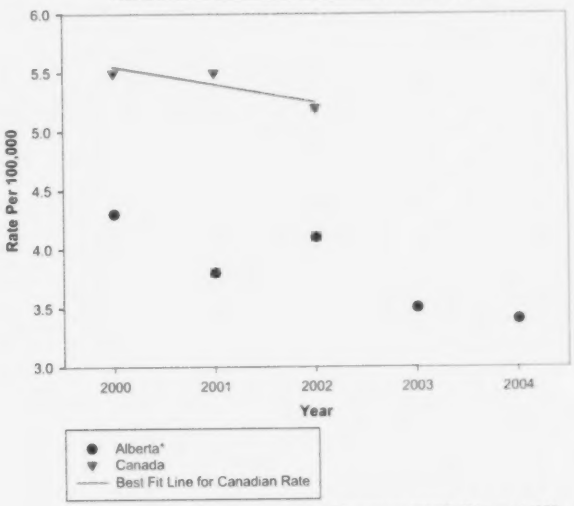
Tuberculosis

Tuberculosis is caused by the bacteria *Mycobacterium tuberculosis*. Symptoms of tuberculosis can include prolonged coughing, night sweats, weight loss, chest pain and coughing up of blood. Tuberculosis can infect other areas of the body besides the lungs. Tuberculosis is transmitted from person to person by airborne particles from an infectious person coughing into the air.

Incidence Rate

The Alberta rate of tuberculosis remains consistently lower than the Canadian rate trend. Despite the low rates, certain populations, such as Aboriginal people and immigrants, remain over-represented among tuberculosis cases. Clusters of tuberculosis are reported regularly in first nations communities in the province. Tuberculosis has remained constant for the past five years, with an average rate of 3.8 cases per 100,000 each year. There were 109 cases of tuberculosis diagnosed in 2004.

Tuberculosis Estimated Incidence Rates, 2000-2004

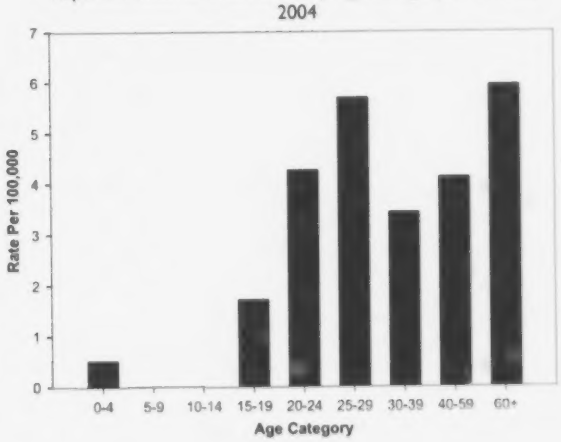


*Alberta rates are considered accurate to within 0.7 cases per 100,000 19 times out of 20

Age Distribution

The overall rate of tuberculosis increases with age, although the average age of infection varies between foreign born and Canadian born cases. The disease rate varies little between adult age groups but the highest disease rate is among those 60 years of age and older.

Reported Rates of Tuberculosis by Age Category, in Alberta, 2004



Geographic Distribution

There is little variation in the rate of tuberculosis among regional health authorities. The highest infection rates in 2004 were in Palliser Health Region, Calgary Health Region and Capital Health, which all had approximately the same rate. The two large, urban regional health authorities have a higher rate of infection as a result of the increased number of immigrants from countries with a high incidence of tuberculosis.

Tuberculosis Rates by Regional Health Authority, 2004

1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

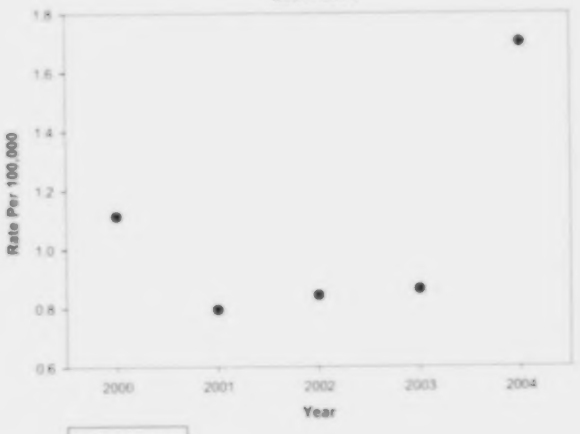
Varicella-zoster (Shingles)

Varicella-zoster virus (VZV) is part of the *Herpesvirus* group. Varicella-zoster is often called herpes-zoster, zoster or shingles. In most cases, shingles (Varicella-zoster) is a reactivation of a childhood case of chickenpox. After infection, VZV lies dormant for many years and may reactivate as a person ages and immune protection weakens. The resulting painful nerve and skin infection is known as shingles. Transmission of VZV is via secretions from blisters of infected individuals. Those who become infected develop chickenpox, not varicella-zoster.

Incidence Rate

In 2004, the rate of varicella-zoster (shingles) was higher than previous years. There were 54 cases of shingles reported in 2004 in Alberta. The cause of the increase is unknown. Shingles is not nationally notifiable.

Varicella-zoster (Shingles) Estimated Incidence Rates, 2000-2004

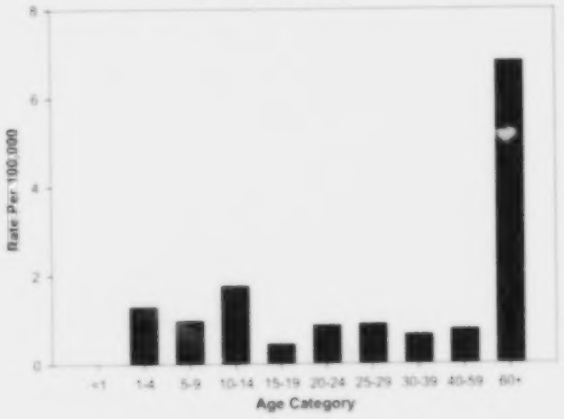


*Alberta rates are considered accurate to within 0.5 cases per 100,000 19 times out of 20
(Varicella-zoster is not under national surveillance)

Age Distribution

The rate of varicella-zoster (shingles) is highest among those 60 years and older. This is consistent with data from previous years.

Reported Rates of Varicella-zoster (Shingles) by Age Category, in Alberta, 2004



Geographic Distribution

The geographic distribution of Varicella-zoster (shingles) varies significantly among the various regional health authorities. The 2004 rate of VZV was highest in the David Thompson Regional Health Authority.

Varicella-zoster (shingles) Rates by Regional Health Authority, 2004

1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

Enteric Illnesses

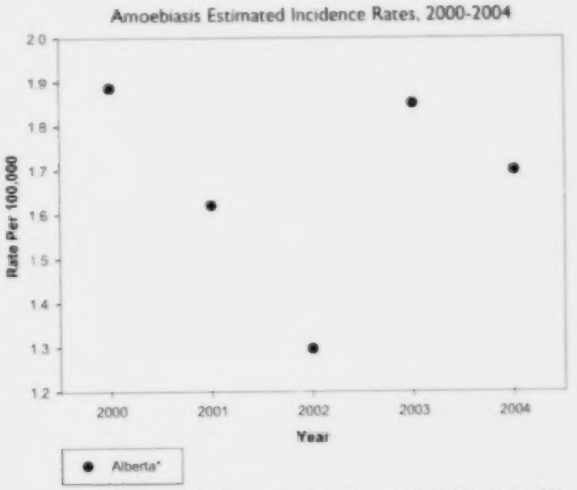
- Amoebiasis
- Campylobacteriosis
- Cryptosporidiosis
- Cyclosporiasis
- Enterohaemorrhagic *Escherichia coli* (EHEC) O157:H7
- Giardiasis
- Hepatitis A
- Listeriosis
- Salmonellosis
- Shigellosis
- Typhoid/ Paratyphoid
- *Vibrio parahaemolyticus*
- Yersiniosis

Amoebiasis

Amoebiasis is caused by the parasite *Entamoeba histolytica*. The disease is commonly known as "amoebic dysentery" and results when the parasite invades the wall of the large intestine, forming ulcers in the process. Symptoms such as diarrhea, fever, chills, and mild abdominal discomfort are the most common. Amoebiasis can be transmitted by water and food contaminated with feces. Illness usually occurs within one to four weeks of ingestion of the parasite. Some individuals may be unaware they are transmitting the disease because they do not show signs of having the infection. These people are called "asymptomatic carriers". Amoebiasis can be either locally acquired or more commonly through foreign travel to tropical regions.

Incidence Rate

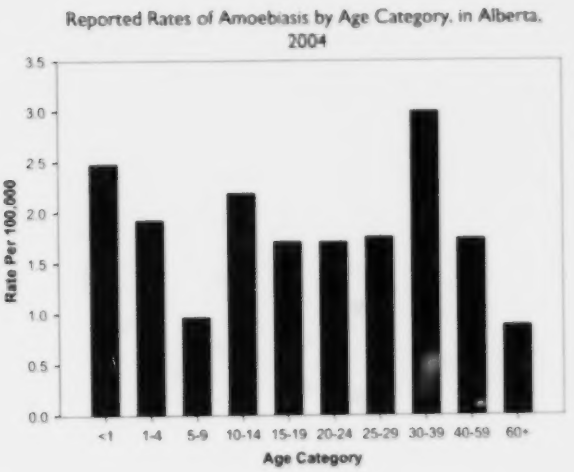
The rate of amoebiasis remains fairly consistent over the past five years. The average rate between 2000 to 2004 is 1.7 cases per 100,000. There were 57 cases of amoebiasis reported in 2004 in Alberta. Amoebiasis is not nationally notifiable.



*Alberta rates are considered accurate to within 0.5 cases per 100,000 19 times out of 20
(Amoebiasis is not under national surveillance)

Age Distribution

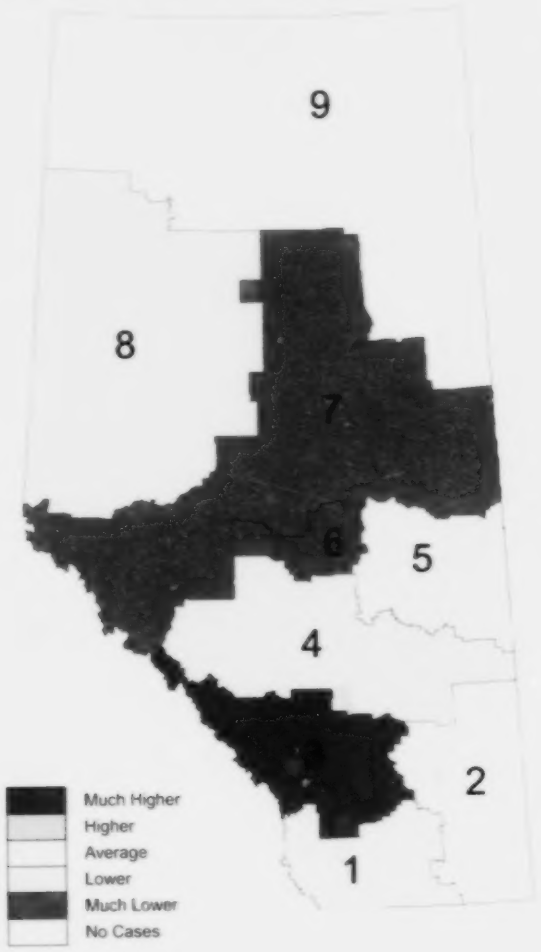
The rate of amoebiasis is fairly equal among all age groups. The rate range is between one and three cases per 100,000. Those most likely to acquire amoebiasis are less than one year of age, or are 30 to 39 years of age.



Geographic Distribution

The geographical distribution of amoebiasis is highly variable by regional health authority. The Calgary Health Region has the highest infection rate for 2004, with a rate of 3.2 cases per 100,000. The next highest rate, in the Chinook Regional Health Authority, is 2.0 cases per 100,000.

Amoebiasis Rates by Regional Health Authority, 2004



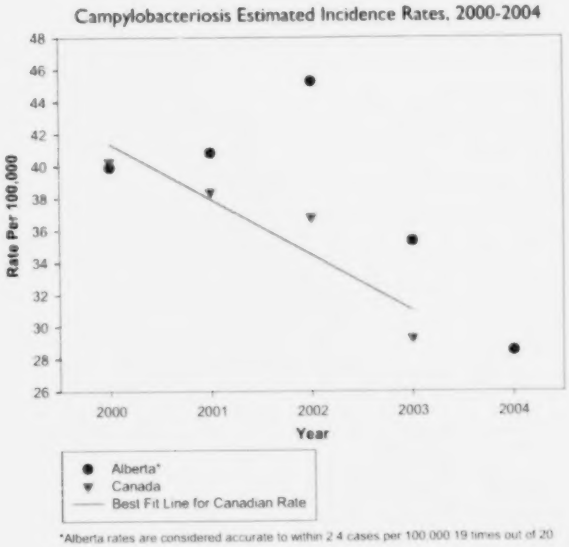
1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

Campylobacteriosis

Campylobacteriosis is an illness caused by bacteria in the *Campylobacter* group. Symptoms of campylobacteriosis usually occur three to five days after ingestion of the organism and generally include diarrhea, abdominal pain, fever, nausea and vomiting. Transmission of *Campylobacter* infection is via the fecal oral route. *Campylobacter* bacteria may be found in the feces of domestic and wild animals. Illness may occur after individuals ingest food, water or especially unpasteurized milk contaminated with the organisms. Campylobacteriosis occurs throughout the world and may be responsible for some "traveler's diarrhea". Campylobacteriosis is locally acquired more frequently during warmer months.

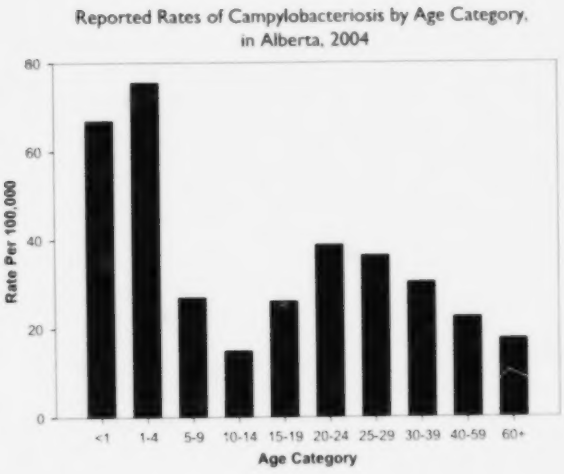
Incidence Rate

Both the Alberta and national rate of campylobacteriosis has been decreasing in recent years. The 2004 Alberta rate is significantly lower than the median rate of the previous five years. There were 906 cases of campylobacteriosis reported in 2004.



Age Distribution

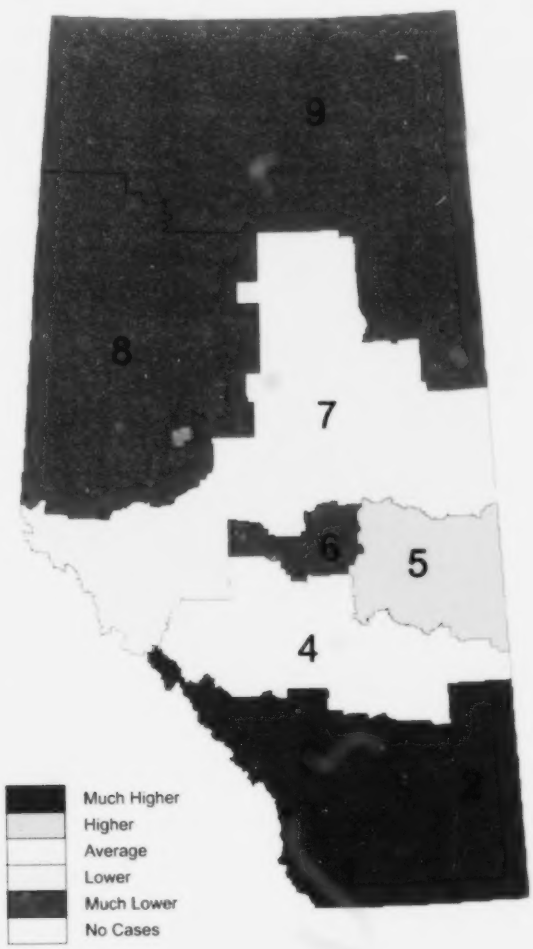
Campylobacteriosis is most common among those four years of age or less. The rate of campylobacteriosis in those one to four years of age is 75 cases per 100,000. The rate in those less than one year of age is 69 cases per 100,000. The infection rate decreases significantly for those over four years of age.



Geographic Distribution

The geographic distribution of *Campylobacter* cases varies by area of the province. Campylobacteriosis rates are the lowest in the northern part of the province, and highest in the southern part. The 2004 infection rate is highest in the Chinook Regional Health Authority.

Campylobacteriosis Rates by Regional Health Authority, 2004



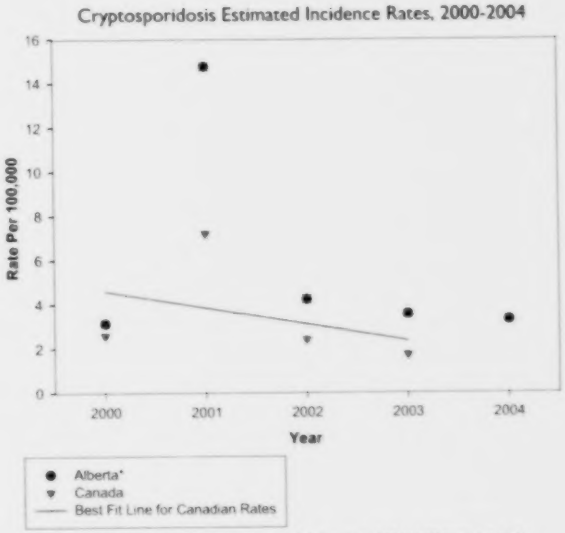
1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

Cryptosporidiosis

Cryptosporidium is an intestinal parasite which can infect warm-blooded animals, including livestock, wildlife, and humans. Cryptosporidiosis causes severe diarrhea, which can be fatal to immunocompromised persons, such as the elderly. It is transmitted through the ingestion of water which has been inadequately treated and is contaminated by feces.

Incidence Rate

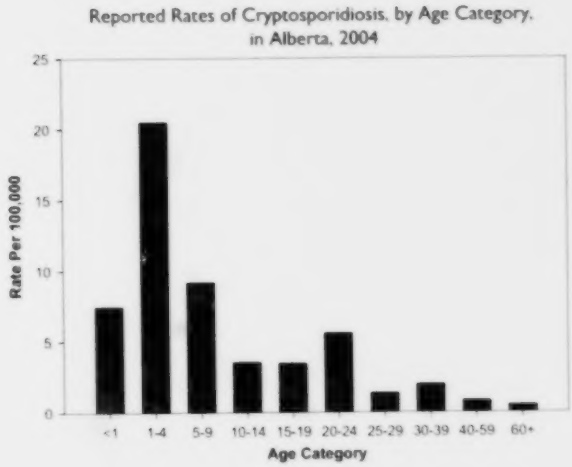
The rate of cryptosporidiosis in Alberta continues to remain close to the Canadian rate, save 2001 when Alberta experienced a significant outbreak. There were 104 cases of cryptosporidiosis reported in Alberta in 2004.



*Alberta rates are considered accurate to within 1.0 cases per 100,000 19 times out of 20

Age Distribution

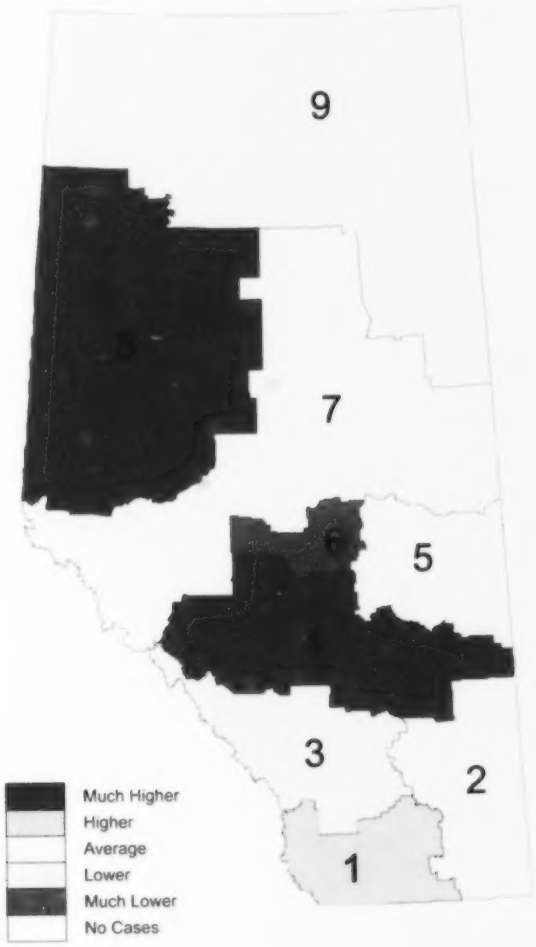
The age distribution of cryptosporidiosis cases is consistent with other enteric illnesses. Those who are one to four years of age are most likely to acquire cryptosporidiosis, with a rate of 20 cases per 100,000. The infection rate decreases significantly for those over four years of age; the overall infection rate for all ages is only three cases per 100,000.



Geographic Distribution

The highest rate of cryptosporidiosis in Alberta in 2004 was in the Peace Country Health Region, with an infection rate of 12.8 cases per 100,000. This was largely due to an outbreak, for which 10 lab confirmed cases were reported to Alberta Health and Wellness.

Cryptosporidiosis Rates by Regional Health Authority, 2004



1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

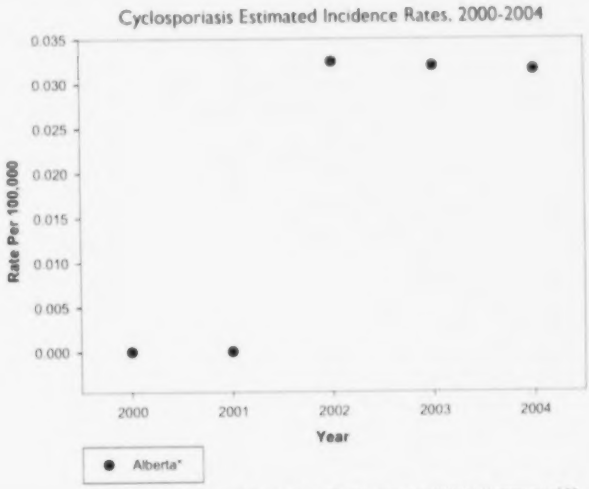
Cyclosporiasis

Cyclospora cayetanensis is a single cell parasite. Symptoms of cyclosporiasis include diarrhea, nausea and abdominal cramps. *Cyclospora* are spread by the fecal oral route, usually through contaminated water or food. *Cyclospora* in fresh stool are not yet infectious, so direct person-to-person transmission is rare. Cyclosporiasis is often associated with travel to Asia, the Caribbean, and South America.

Incidence Rate

The rate of cyclosporiasis has remained constant over the past three years with only one case each year. At least two of the three cases are known to have been associated with foreign travel. Cyclosporiasis is not nationally notifiable.

As only one case of cyclosporiasis was reported in 2004, no age or geographic distribution of the case is reported here.



*Alberta rates are considered accurate to within 0.1 cases per 100,000 19 times out of 20
(Cyclosporiasis is not under national surveillance)

Enterohaemorraghic *Escherichia coli* (EHEC) O157:H7

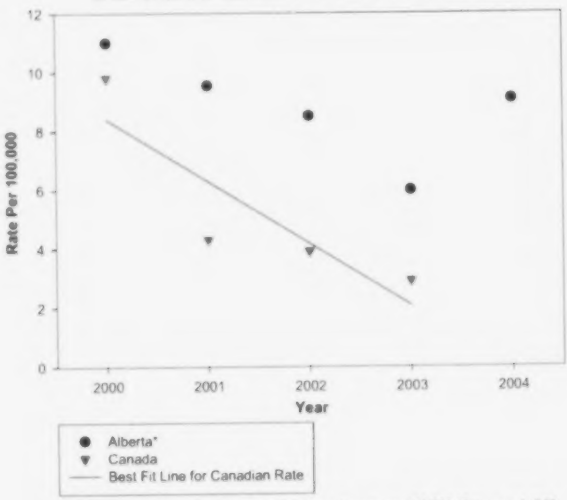
Haemorraghic colitis, commonly referred to as "hamburger disease", is caused by a certain strain (O157:H7) of the common bacterium *Escherichia coli (E.coli)*. These bacteria produce a toxin that damages the lining of the intestine, producing diarrhea and pain. Haemorraghic colitis is characterized by severe stomach cramps, dehydration, and bloody diarrhea two to eight days after eating contaminated food. A mild fever may be present, and the illness usually lasts seven to 10 days.

Escherichia coli (O157:H7) is frequently linked to undercooked meat, and produce, and can be transmitted by the feces of infected individuals and animals.

Incidence Rate

The annual rate of *E. coli* O157:H7 in 2004 is slightly higher than expected at 9.1 cases per 100,000. This is likely due to a significant outbreak in the fall; at least 43 people had laboratory confirmation of *E. coli* O157:H7 and were linked to the outbreak. There were 288 cases of *E. coli* O157:H7 in 2004.

E. coli O157:H7 Estimated Incidence Rates, 2000-2004

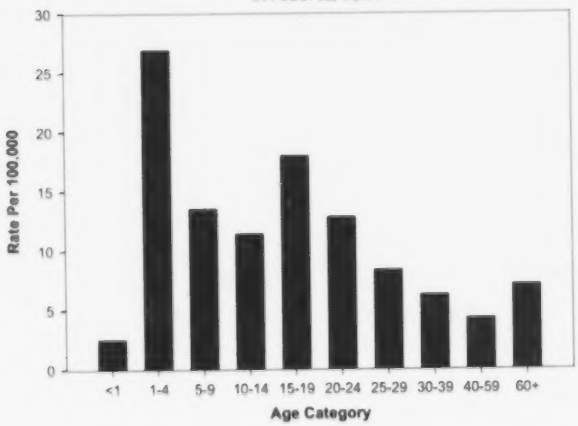


*Alberta rates are considered accurate to within 1.2 cases per 100,000 19 times out of 20

Age Distribution

The age distribution of *E. coli* O157:H7 cases was consistent with other enteric illnesses. The age group most affected is children one to four years of age (26.9 cases per 100,000). The infection rate for all other age groups older than four years of age, is approximately equal.

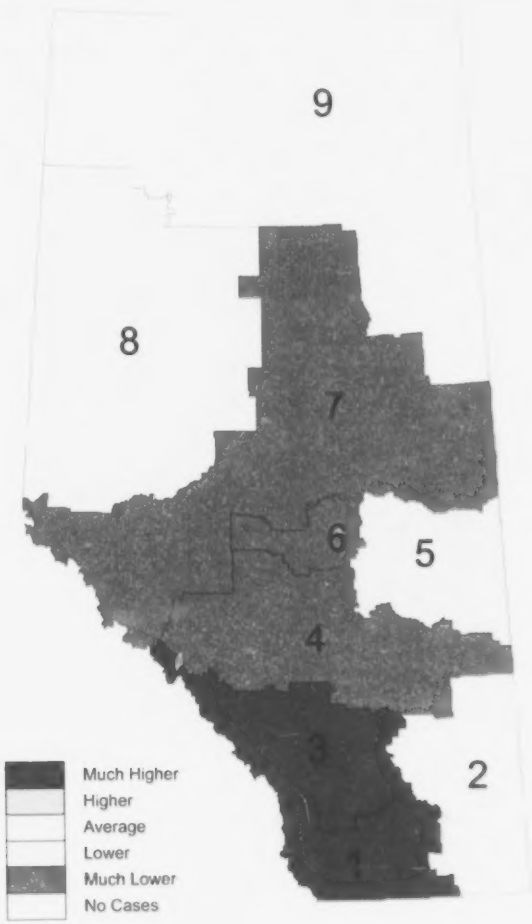
Reported Rates of *E. coli* O157:H7, by Age Category, in Alberta, 2004



Geographic Distribution

Two regional health authorities had rates that were significantly higher than the provincial infection rate. The Calgary Health Region and Chinook Regional Health Authority had infection rates of 18 cases per 100,000 and 13 cases per 100,000 respectively. The Calgary Health Region can attribute its high infection rate to an outbreak with more than 40 cases in the fall of 2004.

Enterohaemorraghic *Escherichia coli* (EHEC) O157:H7 Rates by Regional Health Authority, 2004



1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

Giardiasis

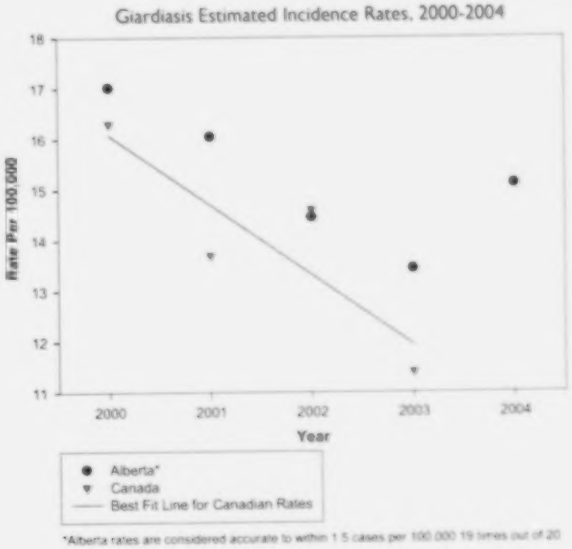
Giardiasis is an intestinal disease caused by the parasite *Giardia lamblia*. Symptoms such as diarrhea, abdominal cramps, bloating, and fatigue may occur. The disease occurs worldwide, although it is more common in areas with poor sanitation. The parasite produces cysts, which are responsible for the spread of the disease. Feces containing these cysts can contaminate both water (most commonly) and food.

Some individuals may be unaware they are transmitting the disease because they do not show signs of having the infection. These people are called "asymptomatic carriers".

Incidence Rate

The Alberta rate of giardiasis in 2004 was consistent with previous years. In 2003, there were very few cases of giardiasis, but the 2004 rate is back to previous levels with 480 cases reported. Nationally, the rate of giardiasis is decreasing.

Giardiasis Estimated Incidence Rates, 2000-2004

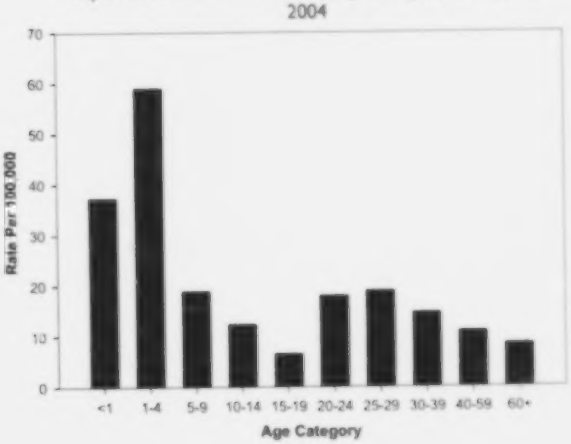


*Alberta rates are considered accurate to within 1.5 cases per 100,000 19 times out of 20

Age Distribution

The age distribution of giardiasis cases is consistent with other enteric illnesses. The age group most affected was children one to four years of age, followed by infants less than one year of age. The infection rate for all other age groups is approximately equal.

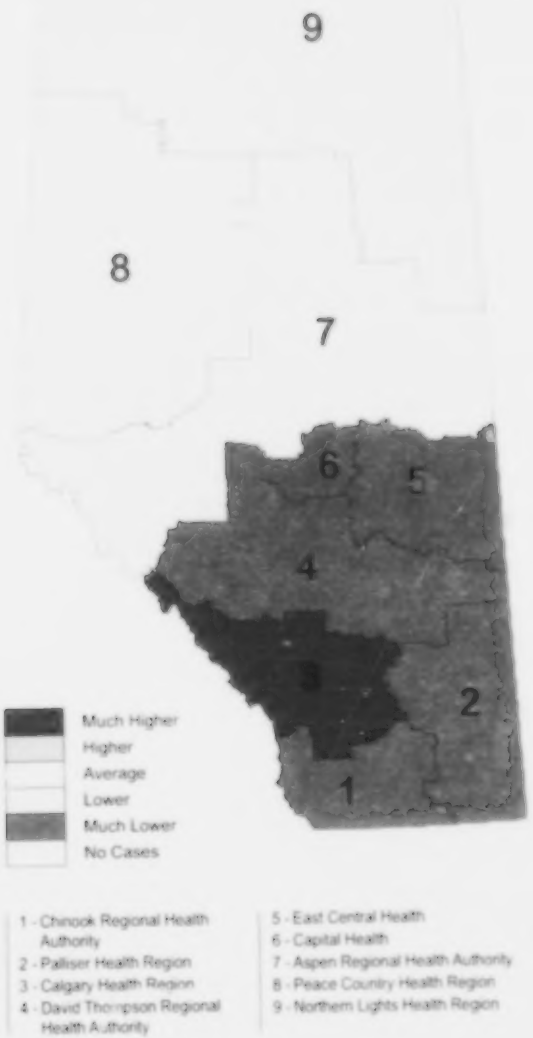
Reported Rates of Giardiasis, by Age Category, in Alberta, 2004



Geographic Distribution

The highest rate of giardiasis in 2004 was in the Calgary Health Region, with a rate of 23.3 cases per 100,000. This is due to the significant number of foreign travel cases; nearly half of the Calgary Health Region cases (130/272), were related to foreign travel. The remainder of the regional health authorities had lower rates, all less than 12 cases per 100,000.

Giardiasis Rates by Regional Health Authority, 2004



1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

Hepatitis A

Hepatitis A is caused by the hepatitis A virus. Onset of this illness is often abrupt with fever, malaise, anorexia, and abdominal discomfort being the main symptoms. These symptoms may be followed by jaundice (yellowing of the skin and the whites of the eyes). However, many adults and most children may be infected (and infectious) but have very mild or no symptoms. The incubation period (time from exposure to symptoms) is normally about four weeks but can be anywhere from two to seven weeks.

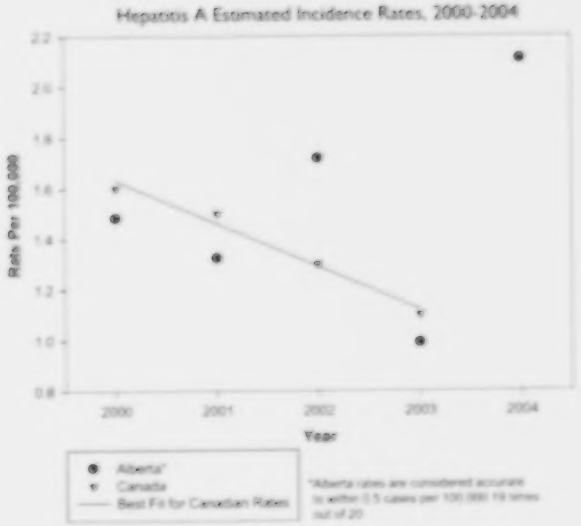
Transmission is via the fecal oral route particularly by ingesting contaminated food or water. In industrialized nations transmission occurs most frequently among household and sexual contact of cases.

In May 2004, Alberta Health and Wellness expanded the hepatitis A immunization program to include immunization of high-risk target groups in addition to hemophiliacs.

Incidence Rate

The rate of hepatitis A in Alberta was significantly higher in 2004 than in previous years (2.1 cases per 100,000). This is the result of an increase in cases in most regional health authorities, especially Capital Health. An in-depth investigation was completed, but no explanation for the increase was found. There were 67 cases of hepatitis A diagnosed in 2004 in Alberta.

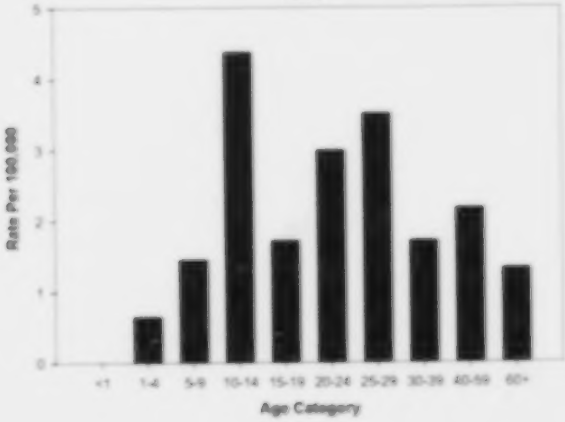
Hepatitis A Estimated Incidence Rates, 2000-2004



Age Distribution

The age distribution of hepatitis A is different than for many other enteric illnesses. Those most likely to be infected are not young children but older children and young adults. In 2004, those most likely to be infected with hepatitis A were 10 to 14 year olds.

Reported Rates of Hepatitis A by Age Category, in Alberta, 2004



Geographic Distribution

The Capital Health Region was most affected by hepatitis A in 2004, with a rate of 2.9 cases per 100,000. Many other regional health authorities experienced an increase in cases, though not to the same extent as Capital Health.

Hepatitis A Rates by Regional Health Authority, 2004

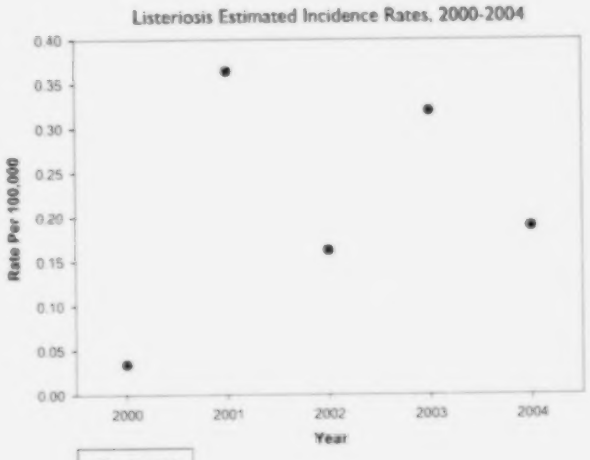
1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

Listeriosis

Listeriosis is caused by the bacterium *Listeria monocytogenes*. The disease primarily affects pregnant women, newborns, and immunocompromised individuals. Symptoms of listeriosis include, fever, muscle aches, and nausea or diarrhea. Infections during pregnancy can lead to miscarriage, stillbirth, or infection of the newborn. Transmission of the bacteria is the result of eating unpasteurized milk products, such as soft cheeses or other contaminated foods.

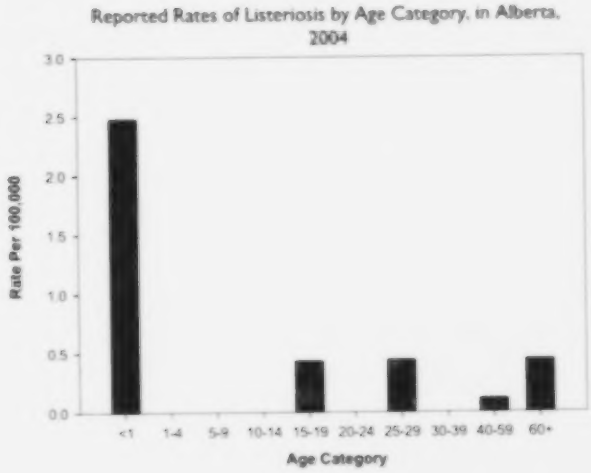
Incidence Rate

There were six cases of listeriosis in 2004. Although slightly lower, the 2004 Alberta rate is consistent with previous years. Listeriosis is not nationally notifiable.



Age Distribution

The age group most affected by listeriosis is infants less than one year of age. The rate among those less than one year was 2.5 cases per 100,000. The rate of listeriosis is significantly lower for all other age groups.



Geographic Distribution

There were four regional health authorities that reported one or more cases of listeriosis in Alberta in 2004.

Listeriosis Rates by Regional Health Authority, 2004

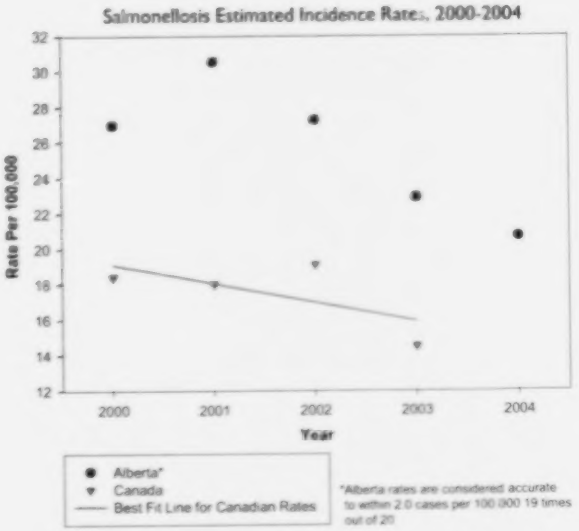
Salmonellosis

Salmonellosis is caused by bacteria from the *Salmonella* group. These bacteria multiply in the small intestine and invade the gut lining. Symptoms such as the sudden onset of abdominal pain, diarrhea, nausea, fever and vomiting are common. Dehydration, especially among infants, may be severe. *Salmonella* bacteria may be found in the feces of infected humans and animals, both of which still appear healthy. Salmonella may be found in food such as raw eggs and egg products, meat and meat products, and poultry.

Salmonellosis is spread by fecal oral transmission and can occur from ingesting food or drinking water contaminated with feces.

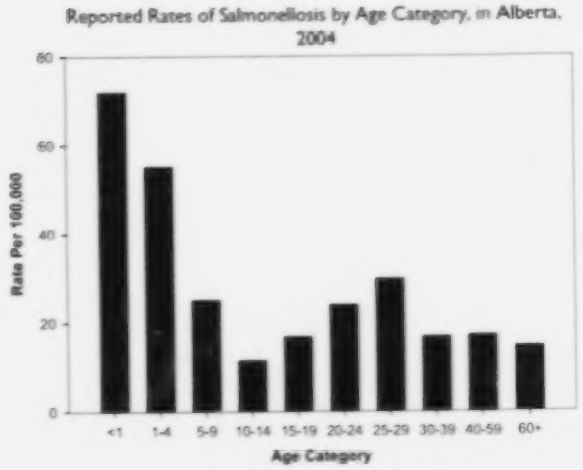
Incidence Rate

The 2004 Alberta rate of salmonellosis is 20.7 cases per 100,000. Although higher than the Canadian rate trend, the number of cases of salmonellosis has been decreasing each year. There were 657 cases of salmonellosis in 2004.



Age Distribution

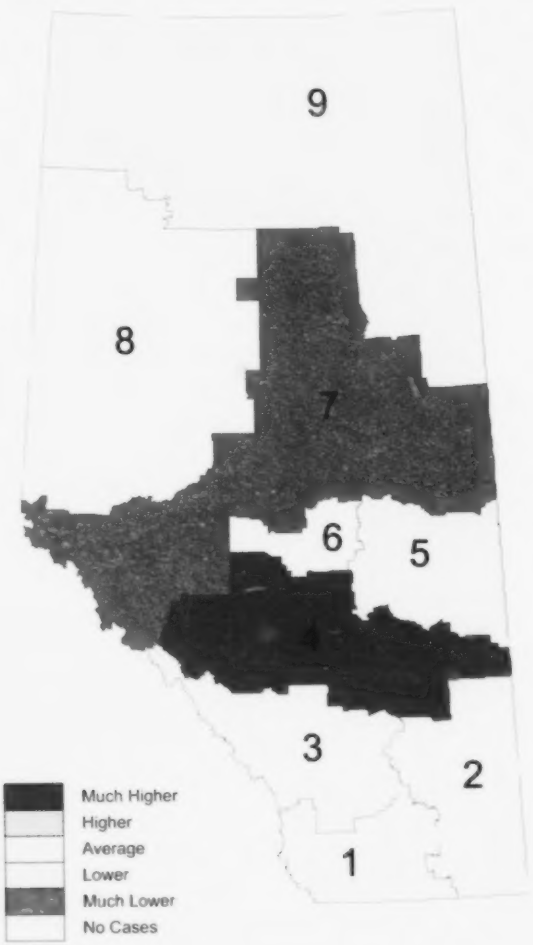
Those most affected by salmonellosis are those less than one year of age, followed by those one to four years of age. The infection rate for all other ages is significantly lower than for those four years and younger.



Geographic Distribution

The distribution of salmonellosis cases varies among the regional health authorities. David Thompson Regional Health Authority experienced a significant outbreak in the fall of 2004, accounting for 15 cases of *Salmonella enteritidis*. Had this outbreak not occurred, the rate of salmonellosis in the David Thompson Regional Health Authority would have been at the expected level.

Salmonellosis Rates by Regional Health Authority, 2004



1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

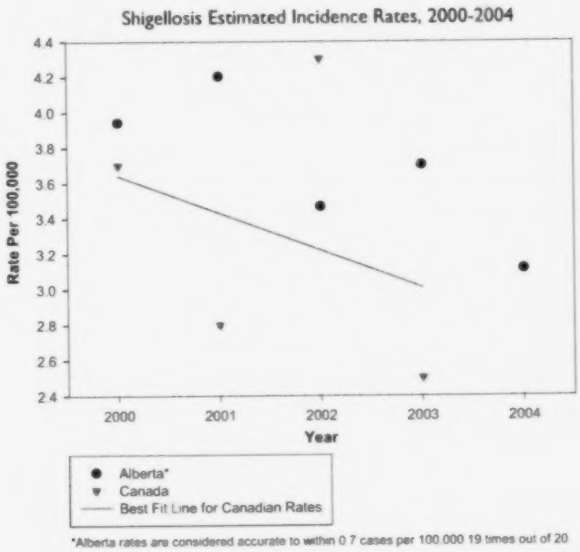
Shigellosis

Shigellosis is caused by bacteria from the *Shigella* group. It is commonly known as "bacillary dysentery". Symptoms such as diarrhea, fever, nausea, vomiting and cramps are most common. Blood may also be found in the feces. Shigellosis occurs throughout the world and is most often associated with children under 10 years of age.

Shigellosis is spread by fecal oral transmission. Shigellosis can also be spread indirectly when individuals eat food or drink water contaminated with bacteria from human feces.

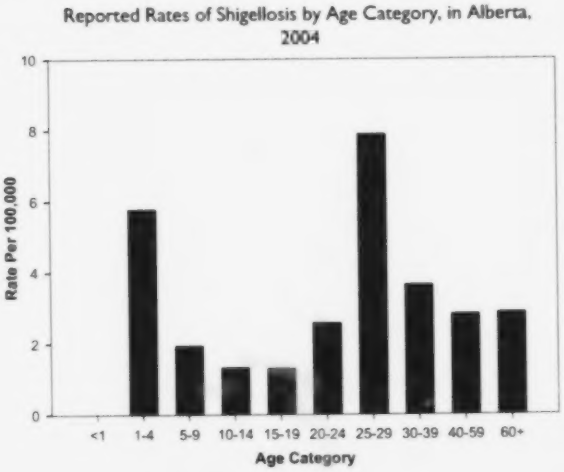
Incidence Rate

The rate of shigellosis in Alberta appears to be decreasing slightly. The Alberta rate remains consistently higher than the Canadian rate trend of shigellosis, which is also decreasing. Alberta had 99 cases of shigellosis reported in 2004, the lowest number in more than five years.



Age Distribution

The rate of shigellosis is greatest among those 25 to 29 years of age, followed by children age one to four years. For all other ages, the infection rate is lower (two to three cases per 100,000).



Geographic Distribution

The distribution of cases of shigellosis in Alberta varies significantly by regional health authority. The majority of cases and the highest rate of cases (4.4 cases per 100,000) were reported by the Calgary Health Region. All other regional health authorities had average or below average rates of shigellosis in 2004.

Shigellosis Rates by Regional Health Authority, 2004

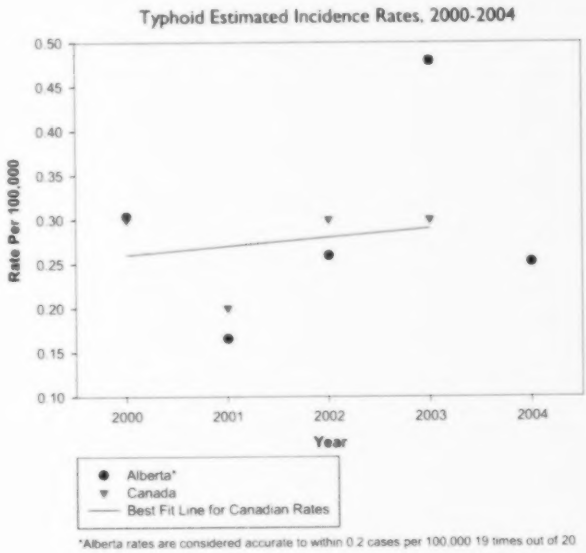
1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

Typhoid and Paratyphoid Enteric Fevers

Typhoid and paratyphoid fevers are caused by the bacteria *Salmonella typhi (S. typhi)* and *Salmonella paratyphi*, respectively. Symptoms of typhoid and paratyphoid include, fever, headache, enlarged spleen and constipation or (less commonly) diarrhea. Typhoid and paratyphoid fevers are transmitted through the fecal oral route. Infection occurs after ingesting foods, or by drinking water that has been contaminated with infected feces or urine. Asymptomatic carriers of typhoid exist and can infect others. Typhoid is common in Asia and many developing nations around the world. A vaccine for typhoid is available to foreign travelers.

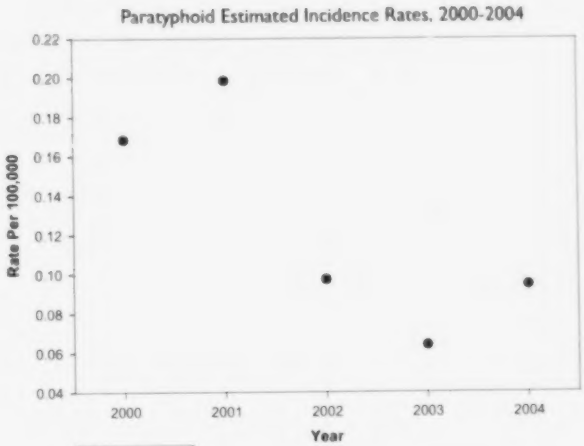
Incidence Rate

The typhoid fever rate in Alberta varies from year to year, but all cases are related to foreign travel or contact with foreign travelers. In 2003, an increase of cases was noted (15 cases reported). Seven of these cases were children, all of whom were hospitalized. All but one child had recently returned from the Indian subcontinent. There were eight cases of typhoid reported in 2004. The Alberta typhoid fever rate continues to approximate the Canadian rate trend.



The rate of paratyphoid fever in Alberta is low. Only three cases were reported in 2004, which is consistent with previous years. The rate of paratyphoid fever is consistently between 0.1 and 0.2 cases per 100,000. Paratyphoid is not nationally notifiable.

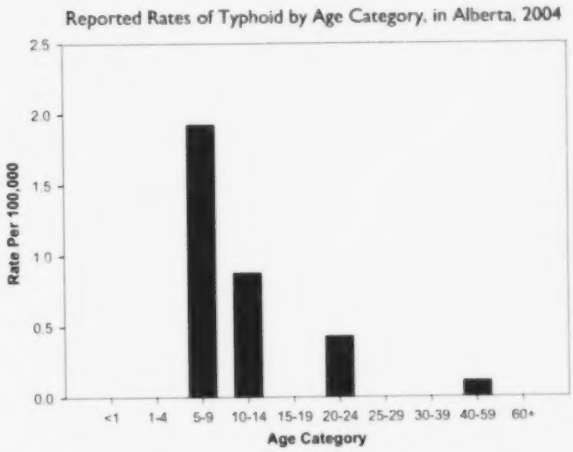
As only three cases of paratyphoid were reported in 2004, no age or geographic distribution of cases is reported here.



*Alberta rates are considered accurate to within 0.2 cases per 100,000 19 times out of 20
(Paratyphoid is not under national surveillance)

Age Distribution

Those most affected by *S. typhi* in 2004 were school aged children. This is an unusual age distribution of cases, as it is expected that most cases would be among adults with a history of foreign travel.



Geographic Distribution

Distribution of cases of typhoid in 2004 varied significantly by regional health authority. The majority of cases, 75 per cent (6/8), were reported in the Calgary Health Region, for a rate of 0.5 cases per 100,000.

Typhoid Rates by Regional Health Authority, 2004

1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

Vibrio parahaemolyticus

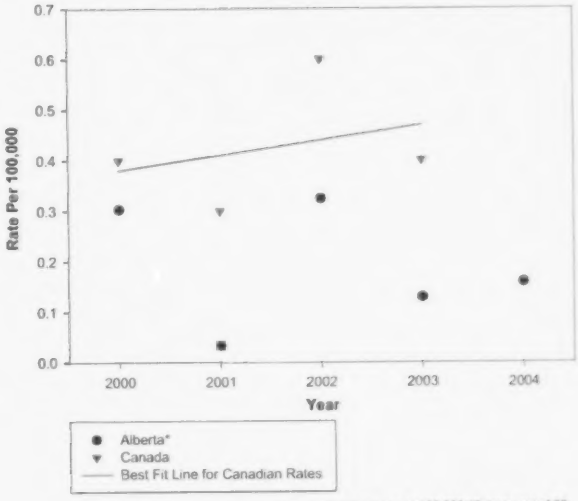
Vibrio parahaemolyticus is a gram-negative bacilli bacterium. Infection is generally characterized by gastroenteritis including watery diarrhea and abdominal cramps. On occasion, nausea, vomiting, fever, and headache may be present. The natural habitat for this organism is marine coastal waters. *Vibrio parahaemolyticus* is not passed from person to person but rather through the ingestion of infected raw or inadequately cooked seafood or any other food contaminated after handling raw seafood.

Incidence Rate

The rate of *Vibrio parahaemolyticus* in Alberta remains lower than the Canadian rate trend.

As only five cases of *Vibrio parahaemolyticus* were reported in 2004, no age or geographic distribution of cases is reported here.

Vibrio parahaemolyticus Estimated Incidence Rates, 2000-2004



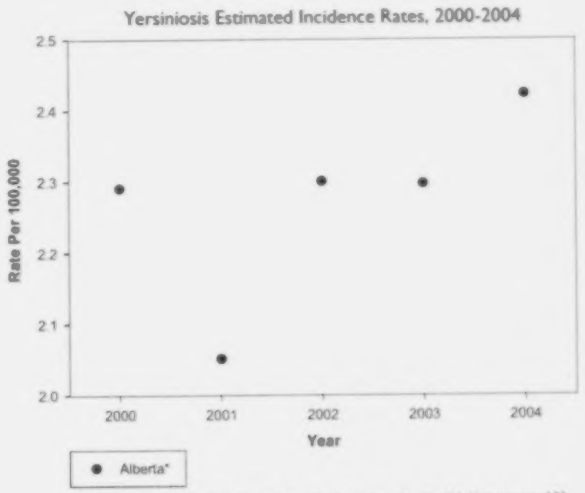
*Alberta rates are considered accurate to within 0.2 cases per 100,000 19 times out of 20

Yersiniosis

Yersiniosis is caused by bacteria in the *Yersinia* genus, most commonly *Y. enterocolitica*. Children are the most likely to become infected. Symptoms of yersiniosis vary but generally include fever, abdominal pain, and diarrhea, which may be bloody. Transmission of *Y. enterocolitica* is through the fecal oral route.

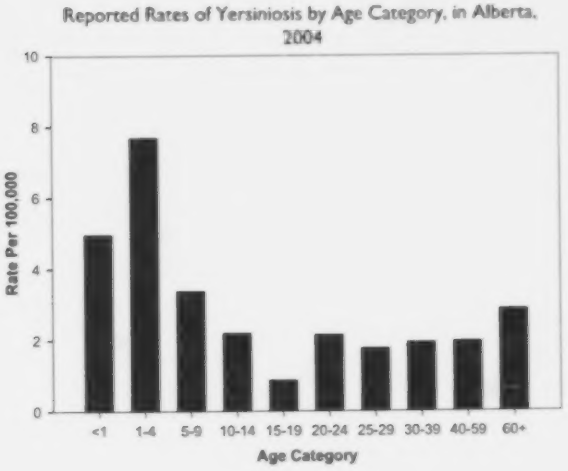
Incidence Rate

The rate of yersiniosis over the past five years is fairly consistent, with an average of 68 cases per year. Yersiniosis is not under national surveillance, so no Canadian rates are available for comparison. There were 77 cases of yersiniosis in 2004.



Age Distribution

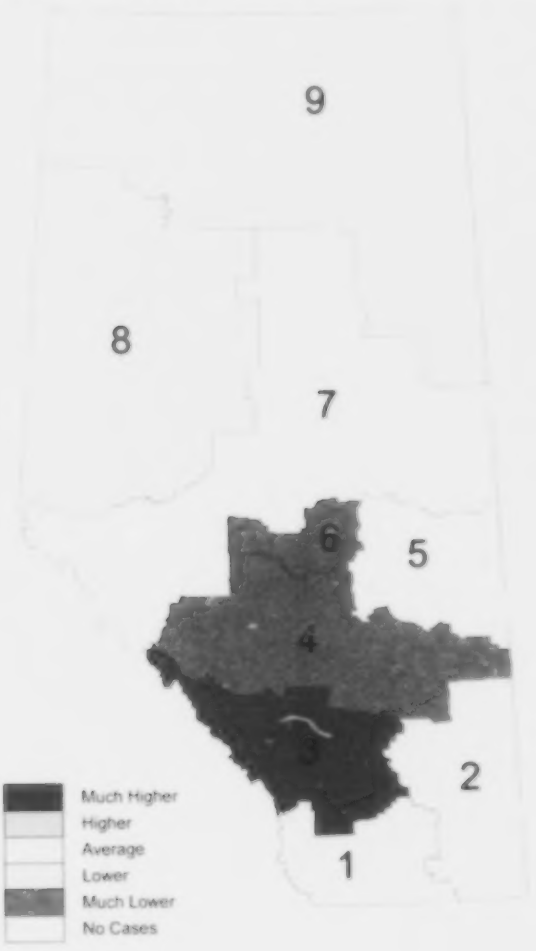
Yersiniosis is most common among those four years of age or less. The rate among those one to four years of age is 7.7 cases per 100,000. The rate among those less than one year of age is five cases per 100,000. The infection rate for all other ages is approximately equal, with a rate of 2.1 cases per 100,000.



Geographic Distribution

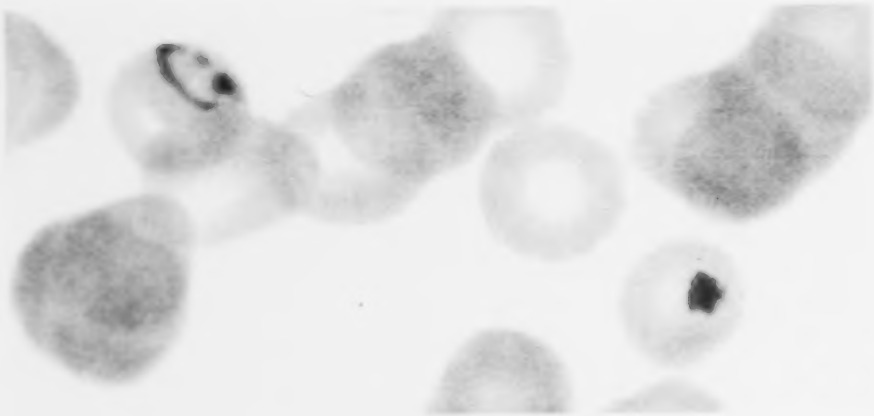
The geographical distribution of yersiniosis varies by regional health authority. The rate is highest in the Calgary Health Region. Rates in David Thompson Regional Health Authority and Capital Health are lower than the Alberta rate of 2.4 cases per 100,000.

Yersiniosis Rates by Regional Health Authority, 2004



1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

Environmental and Zoonotic Illnesses



- Brucellosis
- Dengue Fever
- Hantavirus Pulmonary Syndrome (HPS)
- Legionellosis
- Lyme Disease
- Malaria
- Q Fever
- Rickettsial Infections
- West Nile Infection

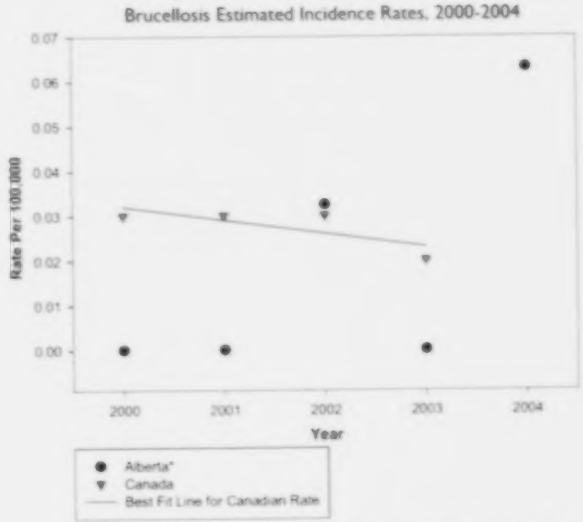
Brucellosis

Brucellosis is caused by the bacteria of the genus *Brucella*. Symptoms of brucellosis may include fever, sweats, headaches, back pain, and physical weakness. Brucellosis affects primarily large animals such as elk, cattle, deer and pigs as well as humans. Brucellosis is a serious agricultural concern. The severity of this illness in humans is highly variable. Transmission occurs as a result of contact with infected animals or animal products.

Incidence Rate

The rate of brucellosis in Alberta is very low, with only three cases reported in the past five years. There were two cases in 2004, both in adult males. The Alberta rate of brucellosis is typically lower than the Canadian rate trend although 2004 may be an exception.

As only two cases of brucellosis were reported in 2004, no age or geographic distribution of cases is reported here.



*Alberta rates are considered accurate to within 0.1 cases per 100,000 19 times out of 20

Dengue Fever

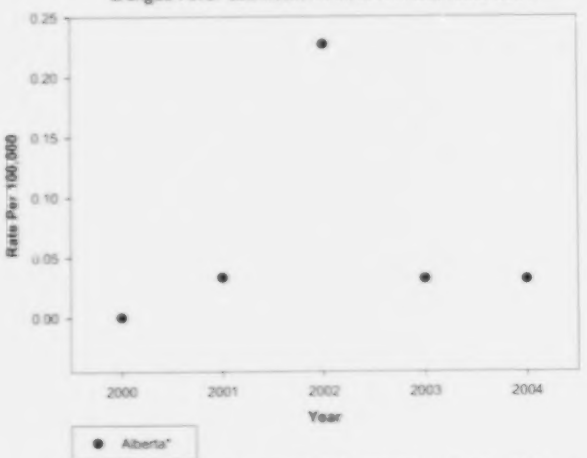
Dengue fever is a viral disease transmitted by *Aedes* mosquitoes. Dengue fever is common in tropical areas of the world and can be a serious concern for international travelers. Symptoms of dengue fever include fever, nausea, an intense headache, and a rash. Transmission occurs when an infected mosquito bites a human.

Incidence Rate

The rate of dengue fever is highly variable as it is the result of international travel. Only one case of dengue fever was reported in Alberta in 2004, but seven were reported in 2002. Dengue fever is not nationally notifiable.

As only one case of dengue fever was reported in 2004, no age or geographic distribution of the case is reported here.

Dengue Fever Estimated Incidence Rates, 2000-2004



*Alberta rates are considered accurate to within 1.6 cases per 100,000 19 times out of 20
(Dengue fever is not under national surveillance)

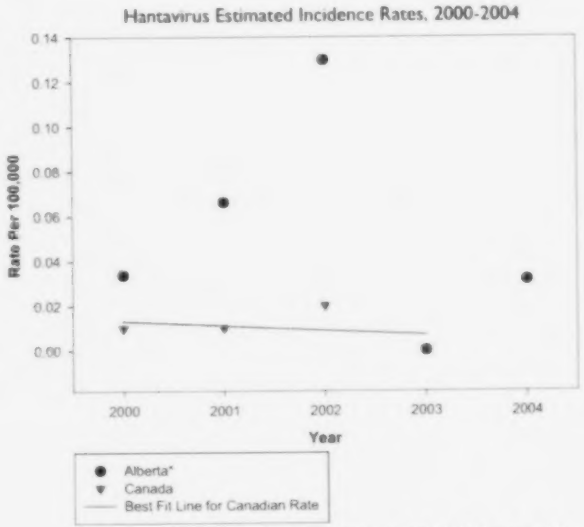
Hantavirus Pulmonary Syndrome

Hantavirus is caused by an ribonucleic acid (RNA) virus and is carried by some mice and may be transmitted through contact with their droppings. Most cases occur in the spring during cleaning when people may breathe in air borne particles. Early symptoms are similar to the flu, but can quickly develop into severe breathing problems. Cases of hantavirus infection can be fatal.

Incidence Rate

Only one case of hantavirus was reported in 2004. With only one case, the rate of hantavirus in Alberta remains higher than the Canadian rate. Only eight cases of hantavirus were reported between 2000 and 2004, with one death resulting from infection.

As only one case of hantavirus was reported in 2004, no age or geographic distribution of the case is reported here.



*Alberta rates are considered accurate to within 0.1 cases per 100,000 19 times out of 20

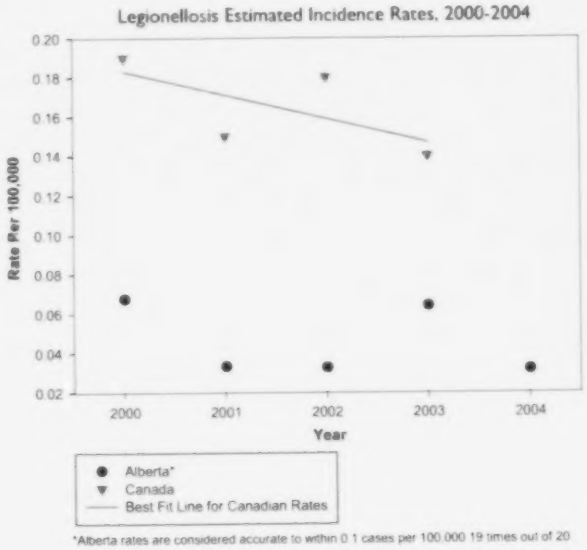
Legionellosis

Legionellosis is caused by the bacteria *Legionella pneumophila*. Legionellosis is also called Legionnaire's disease. It acquired its name in 1976 when an outbreak of a bacterial pneumonia occurred at an American Legion conference. Symptoms of legionellosis include headache, fevers, and a cough. Some infected people have no symptoms at all, but serious disease can occur in immunocompromised hosts, such as the elderly. *Legionella* bacteria can live in water, air conditioning towers, humidifiers and hot water tanks. Transmission of bacteria occurs when the bacteria are in the air, such as the case with air conditioning systems.

Incidence Rate

The rate of legionellosis in Alberta is low compared to the Canadian rate. One to two cases of legionellosis are expected per year in Alberta. In 2004, only one case was reported, in an adult male.

As only one case of legionellosis was reported in 2004, no age or geographic distribution of the case is reported here.



*Alberta rates are considered accurate to within 0.1 cases per 100,000 19 times out of 20

Lyme Disease

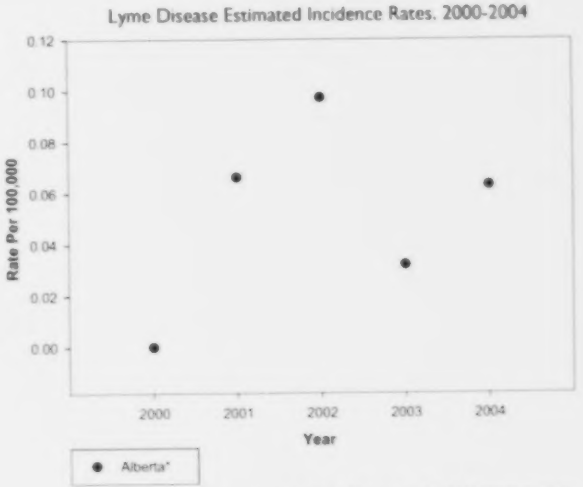
Lyme disease is caused by the bacterium *Borrelia burgdorferi*. This disease is named after Lyme, Connecticut, where the disease was first found in North America.

Symptoms of Lyme disease include a classic "bull's eye" rash, headache, sore throat, stiff neck, fever, muscle aches and fatigue. Lyme disease is transmitted by several species of ticks that are infected with the bacteria. To date, there have been no reported cases of Lyme disease acquired in Alberta. The tick responsible for Lyme disease transmission in North America is not found in Alberta.

Incidence Rate

There were two adult cases of Lyme disease in 2004, both with a history of travel to endemic areas. There are one to two cases of Lyme disease each year in Alberta. This year is consistent with previous years, with one case reported. Lyme disease is not nationally notifiable.

As only one case of Lyme disease was reported in 2004, no age or geographic distribution of cases is reported here.



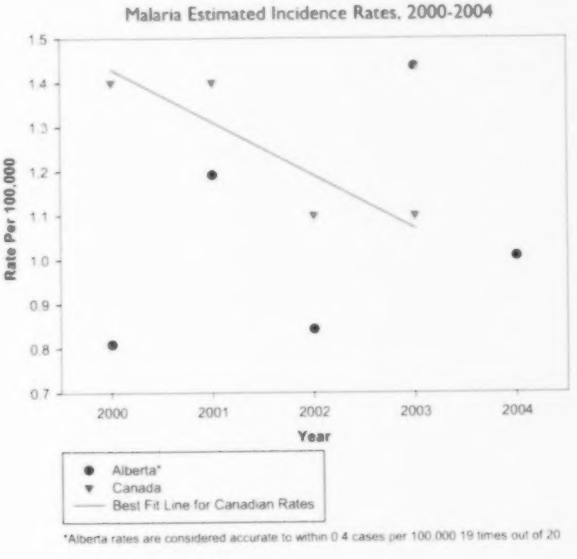
*Alberta rates are considered accurate to within 0.01 cases per 100,000 19 times out of 20.
(Lyme disease is not under national surveillance)

Malaria

Malaria is caused by the *Plasmodium* parasite. Four kinds of *Plasmodium* exist: *Plasmodium falciparum, P. vivax, P. ovale,* and *P. malariae*. Classic malaria symptoms include a fever and chills cycle, with high fevers followed by shaking and chills. Malaria is a leading cause of death and disease worldwide and is a concern for international travelers. Infection is the result of a bite by an infected mosquito.

Incidence Rate

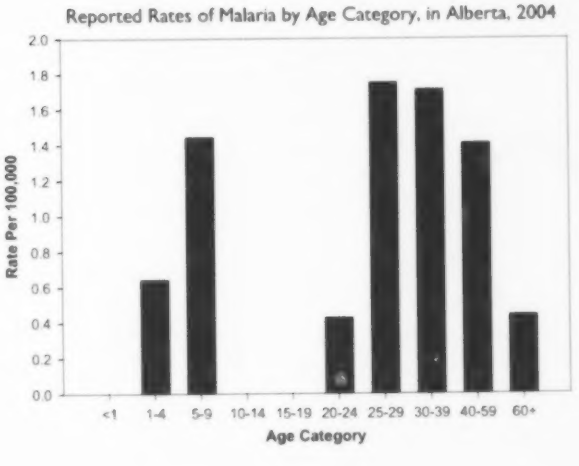
The rate of malaria in the last five years has varied slightly between 0.8 and 1.4 cases per 100,000 per year. In 2004, there were 32 cases of malaria reported in Alberta; all were related to foreign travel.



*Alberta rates are considered accurate to within 0.4 cases per 100,000 19 times out of 20

Age Distribution

The age distribution of malaria in 2004 is consistent with previous years. The most affected age group was adults 25 to 39 years of age. Three children between the ages of five to nine years and, one child between one and four years of age, were reported as cases of malaria in 2004.



Geographic Distribution

The rate of malaria in 2004 is highest in the Calgary Health Region. There were also cases reported in four other regional health authorities with similar rates among these four regional health authorities.

Malaria Rates by Regional Health Authority, 2004

1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

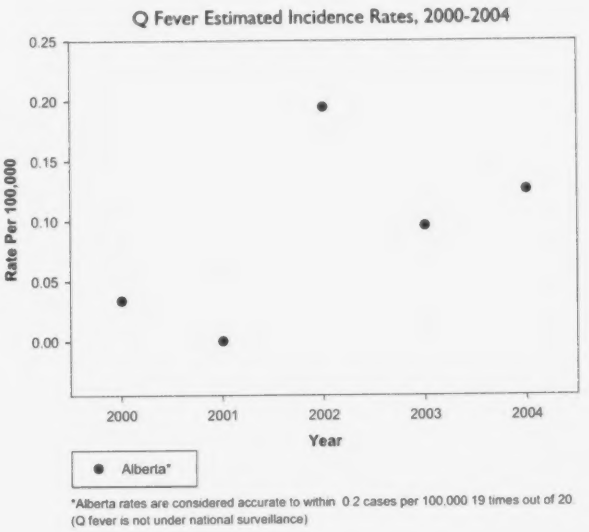
Q Fever

Q fever is caused by the bacteria *Coxiella burnetii*. Symptoms may be mild or not apparent at all. Symptoms include fever-headache, malaise and sweats. Cattle, sheep and goats are the primary reservoirs of *C. burnetii*. The bacteria are excreted in milk, urine, and feces of infected animals. These organisms are able to survive for long periods in the environment. Transmission to humans usually occurs by inhalation of the bacteria in barnyard dust.

Incidence Rate

The 2004 rate of Q fever is very low in Alberta (0.1 cases per 100,000). Only four cases were reported in 2004. In the four years previous, ten cases of Q fever were reported in total. Q fever is not nationally notifiable.

As only four cases of Q fever were reported in 2004, no age or geographic distribution of the cases is reported here.



*Alberta rates are considered accurate to within 0.2 cases per 100,000 19 times out of 20.
(Q fever is not under national surveillance)

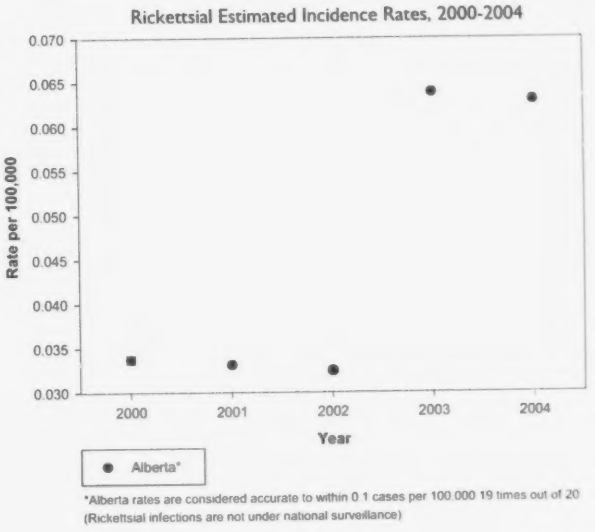
Rickettsial Infections

Rickettsial infections are a group of infections caused by various species of *Rickettsia* bacteria. There are four rickettsial infections under surveillance in Alberta: Rocky Mountain spotted fever (RMSF), louseborne typhus, murine typhus and scrub typhus. Symptoms vary by disease. These infections are quite rare in Alberta. Transmission usually occurs via an infected arthropod vector, such as a tick or lice, or through exposure to an infected animal.

Incidence Rate

The rate of rickettsial infections in Alberta remains very low. Only one or two cases are reported each year. In 2004, two adult cases of Rocky Mountain spotted fever were reported. Rickettsial infections are not nationally notifiable.

As only two cases of rickettsial infections were reported in 2004, no age or geographic distribution of the cases is reported here.



*Alberta rates are considered accurate to within 0.1 cases per 100,000 19 times out of 20
(Rickettsial infections are not under national surveillance)

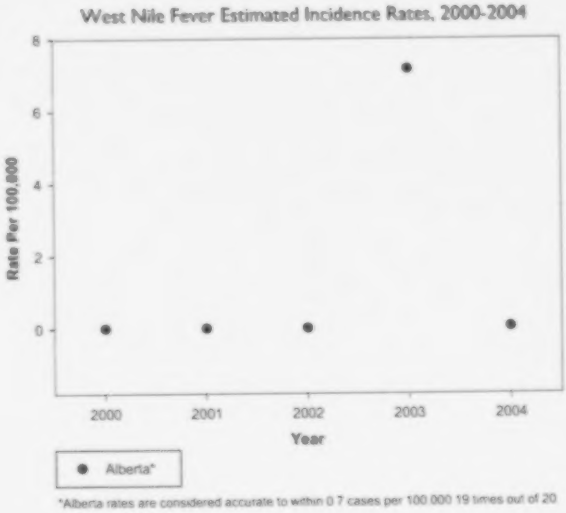
West Nile Infection

West Nile infection is caused by the West Nile virus. There are three classifications of West Nile infections: West Nile Neurological Syndrome (WNNS), West Nile fever (WNF) and West Nile asymptomatic infection (WNAI). West Nile fever symptoms include fever, rash, headache and fatigue. WNNS is a severe infection that can present with significant neurological symptoms. West Nile infections are transmitted by infected mosquitoes, in Alberta the primary species is *Culex Tarsalis*.

Incidence Rate

Despite 275 cases of West Nile infection in 2003, there was only one case of West Nile fever in Alberta in 2004. This case was an adult male who travelled to an area with cases of West Nile infection.

As only one case of WNF was reported in 2004, no age or geographic distribution of the case is reported here.



Sexually Transmitted Infections

- Chlamydia
- Gonorrheal Infection
- Infectious Syphilis
- Mucopurulent Cervicitis
- Non-Gonococcal Urethritis

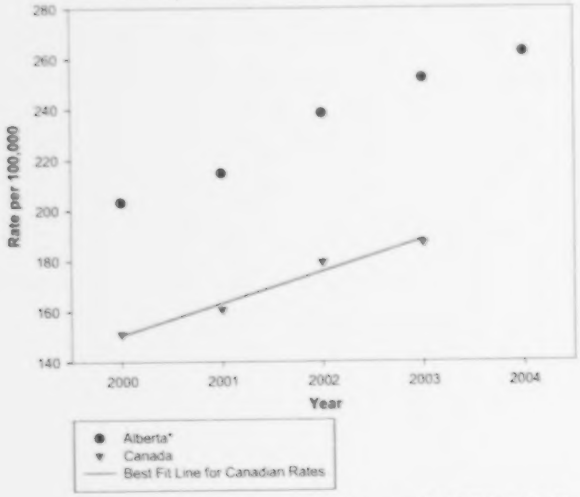
Chlamydia

Chlamydia trachomatis causes the most commonly bacterial sexually transmitted infection (STI). The most common site of infection is the urethra in males and the cervix in females. In both sexes the eyes and rectum can be infected. Up to 50 per cent of males with chlamydia can be asymptomatic and up to 70 per cent of females with chlamydia can be asymptomatic. Complications of chlamydia in females include Pelvic Inflammatory Disease (PID), tubal pregnancies, and infertility. In males, complications include epididymitis and infertility. Chlamydia is curable and treated with antibiotics.

Incidence Rate

The Alberta rate of chlamydia continues to rise. The rate of chlamydia for 2004 was 262 cases per 100,000. There were 8339 cases of chlamydia diagnosed in 2004.

Chlamydia Estimated Incidence Rates, 2000-2004

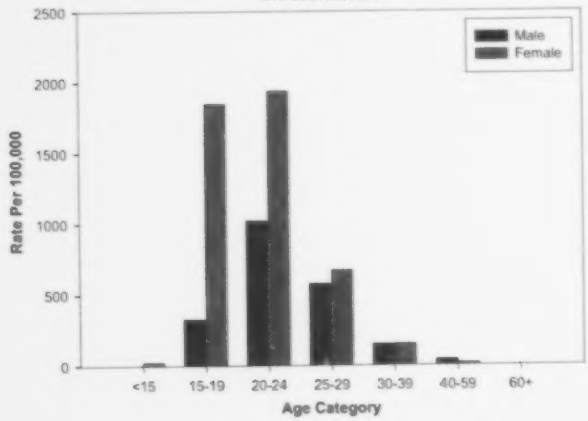


*Alberta rates are considered accurate to within 5.6 cases per 100,000 19 times out of 20

Age and Gender Distribution

The age and gender distribution of chlamydia in Alberta is as expected for this STI. The highest rates are among females age 15 to 24 years followed by males age 20 to 24. The reported chlamydia rate is consistently higher among females than males.

Reported Rates of Chlamydia by Age Category and Gender, in Alberta, 2004



Geographic Distribution

The distribution of chlamydia varies between the northern and southern parts of the province. The chlamydia rates in the northern-most regional health authorities and Capital Health are the highest in the province.

Chlamydia Rates by Regional Health Authority, 2004

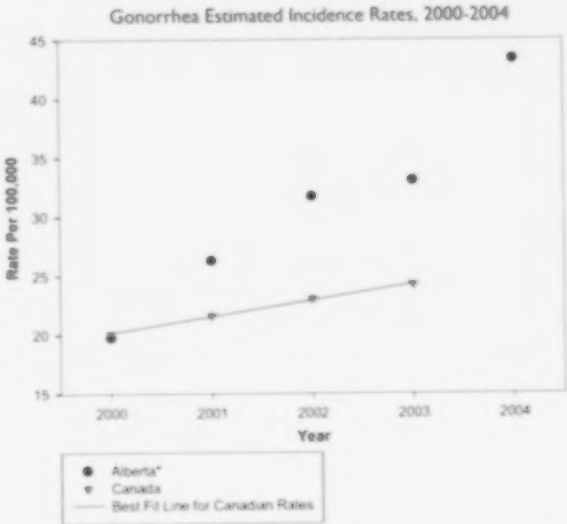
1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

Gonorrhea

Gonorrhea is sometimes referred to as the 'dose' or 'clap.' It is caused by a bacterium called *Neisseria gonorrhoeae*. This infection is most commonly found in the urethra in males and the cervix in females. In both males and females, the throat, rectum, and eyes can also be affected. Gonorrhea is easily passed from one infected person to another during vaginal and anal intercourse, and by oral sex. If gonorrhea spreads to the uterus, fallopian tubes and ovaries, it might cause Pelvic Inflammatory Disease (PID) and sterility.

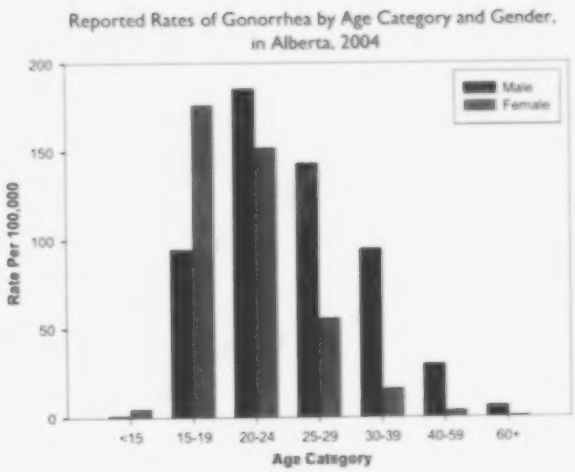
Incidence Rate

The Alberta rate of gonorrhea continues to rise, with 1,376 cases diagnosed in 2004. The Canadian gonorrhea rate is also increasing, but not as rapidly as the Alberta rate.



Age and Gender Distribution

The age and gender distribution of gonorrhea cases is consistent with previous years. The highest rates are among males age 20 to 24 years followed by females age 15 to 19 years.



Geographic Distribution

The distribution of gonorrhea varies between the northern and southern parts of the province. The gonorrhea rates in the northern-most regional health authorities and in Capital Health are the highest in the province. These regions have experienced outbreaks of gonorrhea over the past few years.

Gonorrhea Rates by Regional Health Authority, 2004

1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

Geographic Distribution

The distribution of gonorrhea varies between the northern and southern parts of the province. The gonorrhea rates in the northern-most regional health authorities and in Capital Health are the highest in the province. These regions have experienced outbreaks of gonorrhea over the past few years.

Gonorrhea Rates by Regional Health Authority, 2004

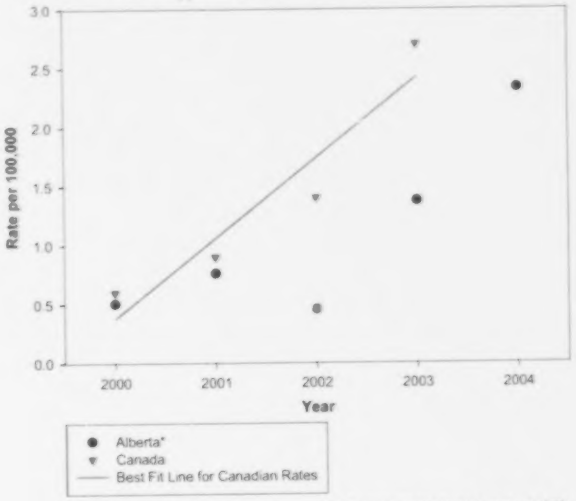
1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

Infectious Syphilis

Syphilis is caused by the bacterium *Treponema pallidum*. It cannot survive outside the body. This bacterium is passed on during direct contact with an infected person during sexual activity or via mother to infant transmission. Syphilis is a disease that can involve many parts of the body, and if not treated it can result in serious long-term consequences. Syphilis is infectious during the first year of infection. Syphilis testing is routinely done during pregnancy so that treatment can be offered to prevent infection in the baby.

Incidence Rate

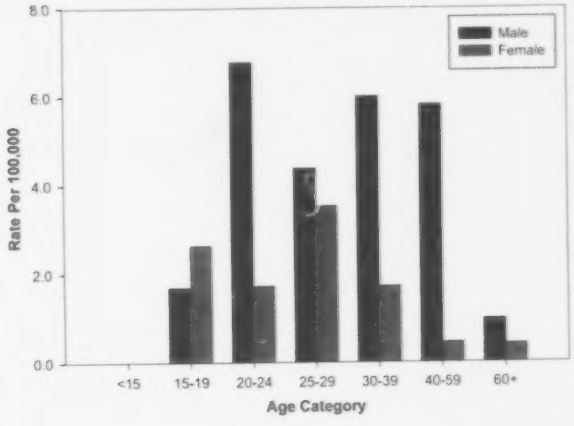
The rate of infectious syphilis in Alberta continues to rise. The infectious syphilis rate in 2004 is 2.3 cases per 100,000. There were 74 cases of infectious syphilis diagnosed in 2004. This is a significant increase from 2003. Alberta rates continue to remain lower than the Canadian rate trend.



* Alberta rates are considered accurate to within 0.5 cases per 100,000 19 times out of 20

Age and Gender Distribution

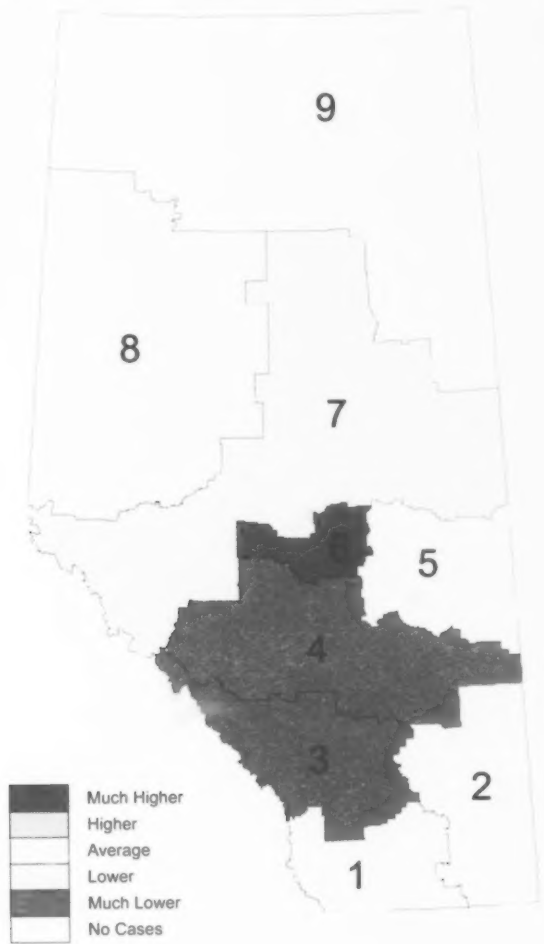
The age and gender distribution of syphilis in Alberta for 2004 is different than for many other sexually transmitted infections. The syphilis rate is consistently higher in males than in females. It is also more common in older age groups than the other notifiable STIs.



Geographic Distribution

The distribution of infectious syphilis cases varies significantly between regional health authorities. In 2004 the highest rate and the greatest number of cases of infectious syphilis was reported by Capital Health.

Infectious Syphilis Rates by Regional Health Authority, 2004



1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

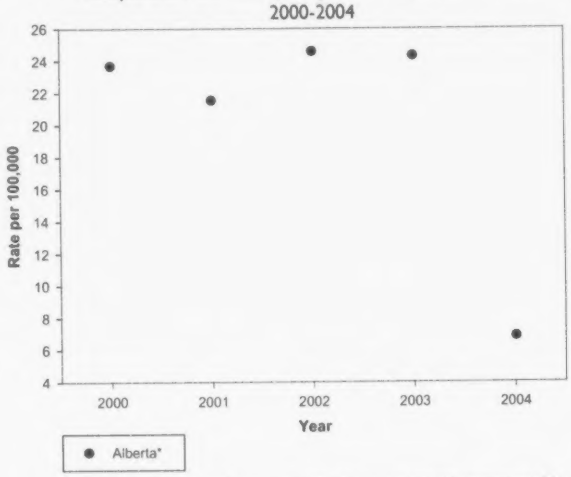
Mucopurulent Cervicitis (MPC)

Mucopurulent cervicitis (MPC) is a common sexually-transmitted disease syndrome in females. MPC causes inflammation of the cervix. MPC is caused by a variety of organisms that may not be identified. If the infection spreads to the uterus, fallopian tubes and ovaries it may cause Pelvic Inflammatory Disease (PID).

Incidence Rate

The rate of MPC dropped significantly in 2004, as the case definition changed. Previously, asymptomatic female contacts of chlamydia and gonorrhea cases were counted as cases. They are no longer counted and the rate has decreased accordingly. The average rate for the previous four years is 23 cases per 100,000 and in 2004 it was 6.6 cases per 100,000. In 2004, 217 cases of MPC were diagnosed. MPC is not nationally notifiable.

Mucopurulent Cervicitis (MPC) Estimated Incidence Rates, 2000-2004

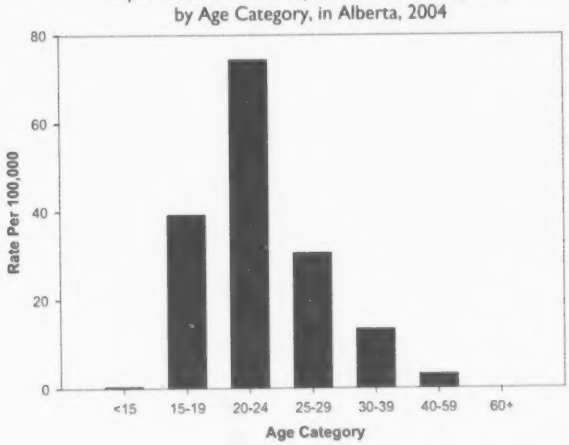


* Alberta rates are considered accurate to within 1.7 cases per 100,000 19 times out of 20. (MPC is not under national surveillance)

Age Distribution

The infection rate of MPC is highest among females 20 to 24 years old. This is consistent with most other sexually transmitted infections.

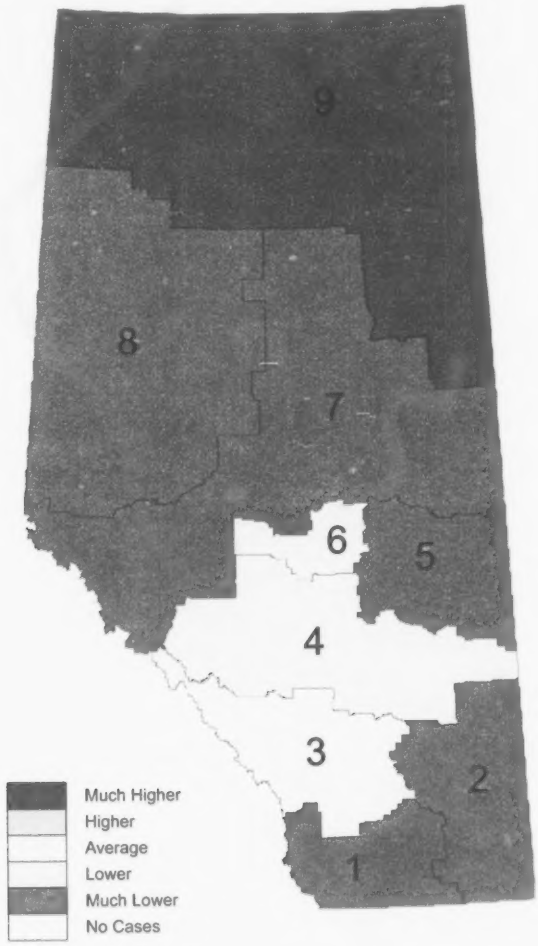
Reported Rates of Mucopurulent Cervicitis (MPC) by Age Category, in Alberta, 2004



Geographic Distribution

The highest infection rate of MPC is in the Northern Lights Health Region. The 2004 rate of MPC has decreased from previous years in all of the regional health authorities.

Mucopurulent Cervicitis Rates by Regional Health Authority, 2004



1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

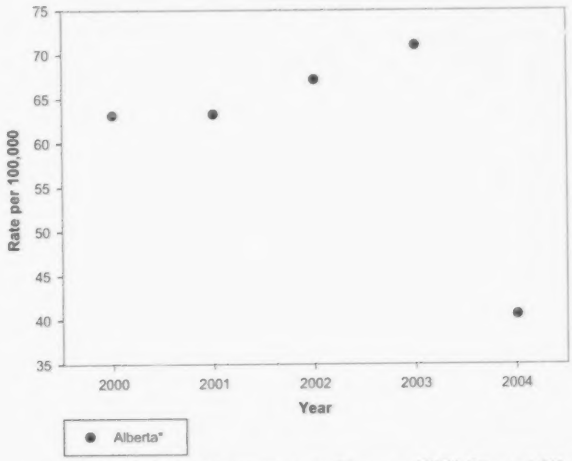
Non-Gonococcal Urethritis (NGU)

Non-gonococcal urethritis (NGU) is a common sexually transmitted disease syndrome in males. It causes inflammation of the urethra. In almost half of the cases of NGU, the organism that causes it cannot be identified. Untreated NGU can cause epididymitis and infertility.

Incidence Rate

The rate of NGU in Alberta dropped significantly in 2004, when the case definition changed. Previously, asymptomatic male contacts of chlamydia and gonorrhea cases were counted as cases. Now that they are no longer counted, the rate has decreased. There were 1,289 cases of NGU diagnosed in 2004. NGU is not nationally notifiable.

Non-Gonoccocal Urethritis (NGU) Estimated Incidence Rates, 2000-2004

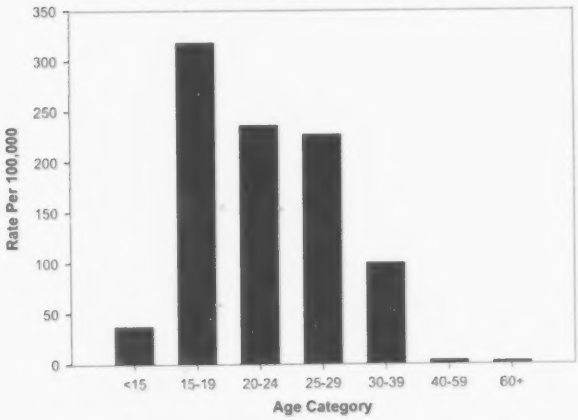


* Alberta rates are considered accurate to within 2.9 cases per 100,000 19 times out of 20 (NGU is not under national surveillance)

Age Distribution

The age distribution of NGU is consistent with previous years and with the age distribution of other sexually transmitted infections. The highest rate is among those 15 to 19 years of age.

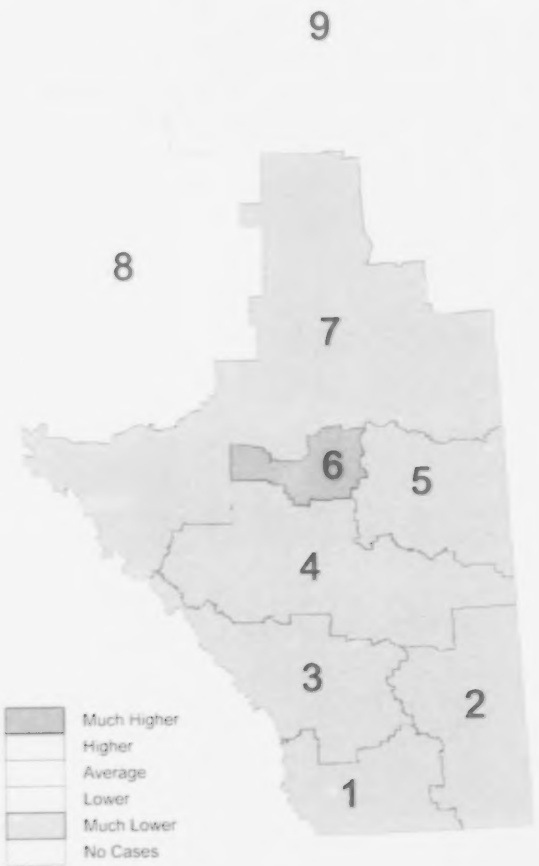
Reported Rates of Non-Gonoccocal Urethritis (NGU) by Age Category, in Alberta, 2004



Geographic Distribution

The infection rate of NGU varies significantly among the regional health authorities. The rate of NGU is highest in Capital Health and Northern Lights Health Region.

Non-Gonococcal Urethritis Rates by Regional Health Authority, 2004



1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

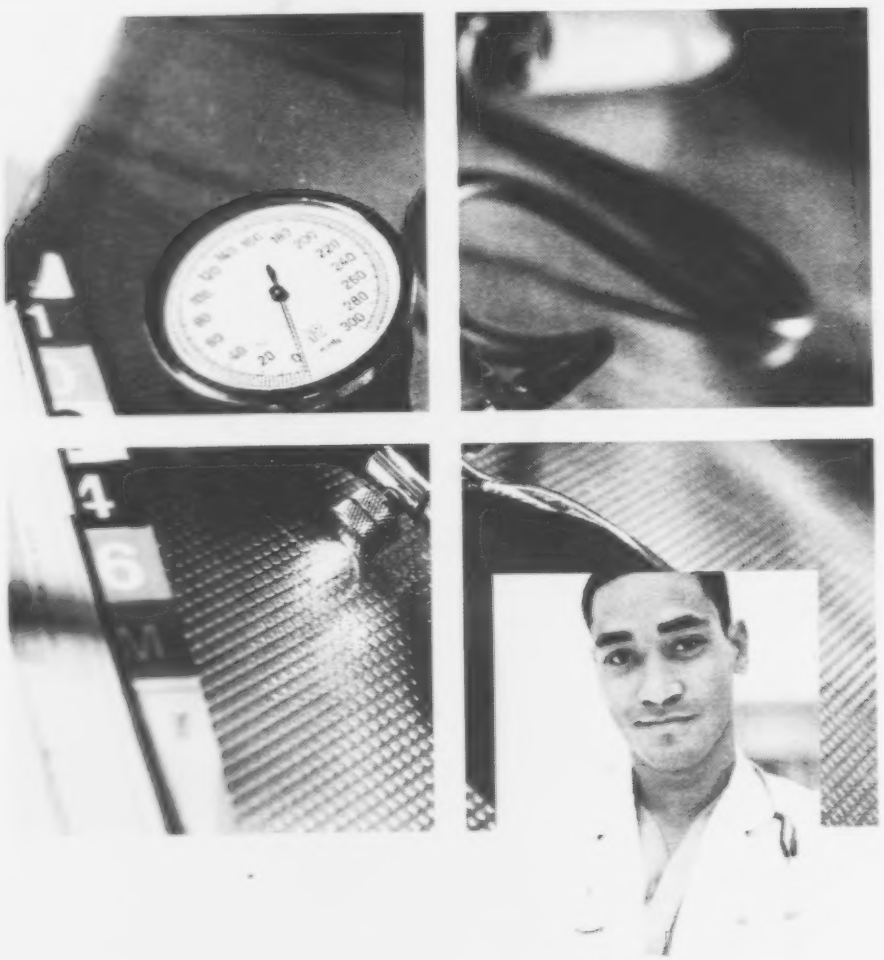
Geographic Distribution

The infection rate of NGU varies significantly among the regional health authorities. The rate of NGU is highest in Capital Health and Northern Lights Health Region.

Non-Gonococcal Urethritis Rates by Regional Health Authority, 2004

1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

Syndromic Illnesses



- Haemolytic Uremic Syndrome

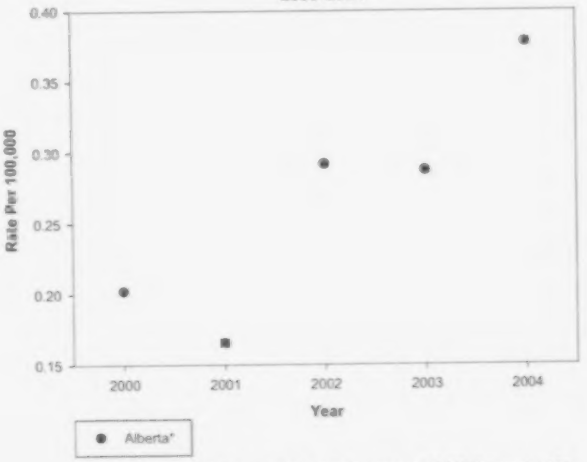
Haemolytic Uremic Syndrome

Haemolytic Uremic Syndrome (HUS) is characterized by clinical characteristics such as microangiopathic hemolytic anemia, thrombocytopenia and renal failure. Childhood HUS is most commonly diarrhea-associated HUS (D+ HUS), which is one of the most frequent causes of acute renal failure in children under five years of age. D+ HUS is frequently associated with enterohaemorrhagic *E. coli* infection.

Incidence Rate

The rate of HUS in Alberta in 2004 was 0.4 cases per 100,000. There were 12 cases reported in 2004. The rate of HUS appears to be increasing in recent years. HUS is not nationally notifiable.

Haemolytic Uremic Syndrome (HUS) Estimated Incidence Rates, 2000-2004

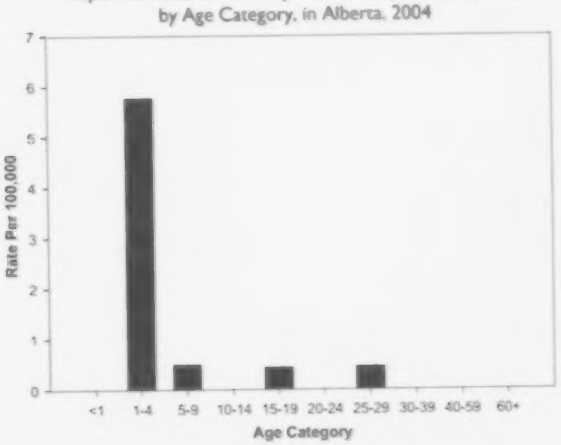


*Alberta rates are considered accurate to within 0.2 cases per 100,000 19 times out of 20 (HUS is not under national surveillance)

Age Distribution

Those most affected by HUS are those one to four years of age. Out of 12 reported cases in 2004, nine were among this age group.

Reported Rates of Haemolytic Uremic Syndrome (HUS) by Age Category, in Alberta, 2004



Geographic Distribution

Only three regional health authorities reported cases of HUS in 2004. The rates for all three regional health authorities varied only slightly (rate range; 0.2 to 0.8 cases per 100,000).

Haemolytic Uremic Syndrome Rates by Regional Health Authority, 2004

1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

Vaccine Preventable Diseases

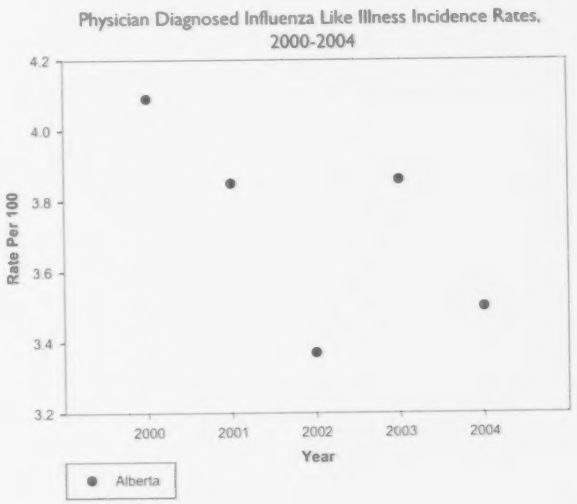
- Influenza A/B
- Invasive Haemophillus Influenza Type B (Hib)
- Invasive Meningococcal Disease (IMD)
- Invasive Pneumococcal Disease (IPD)
- Mumps
- Pertussis
- Rubella
- Varicella (Chickenpox)

Influenza A/B

Influenza is caused by the influenza virus. It is an acute respiratory illness with symptoms that include fever, malaise, sore throat and cough. Influenza is transmitted by an airborne virus from an infected person into the air. Outbreaks of influenza are common and a pandemic is anticipated in the near future.

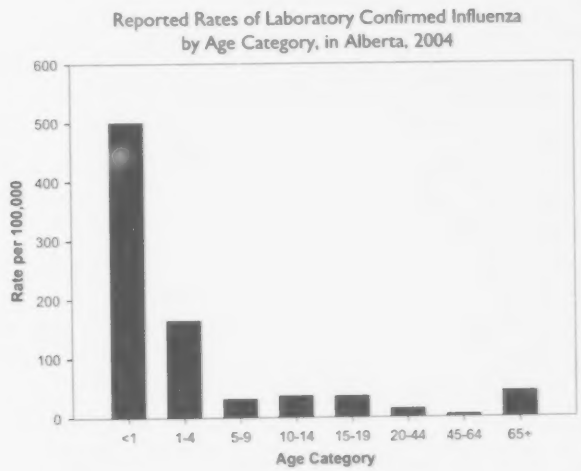
Incidence Rate

As lab confirmed individual cases of influenza are not reportable at the provincial level, physician diagnosis of influenza-like illness is a good surrogate for the level of influenza disease activity. This information is available through a physician billing database. The rate of influenza in 2004 (based on physician diagnosis) was lower than the past four years, but not significantly. The true rate of influenza for all years is likely higher. In 2004 approximately 3.5 cases of influenza were diagnosed per 100 people.



Age Distribution

The age distribution of laboratory confirmed influenza is highest among those less than one year of age, with a laboratory confirmed rate of 500 cases per 100,000. This is due in part to the increased likelihood of laboratory testing of infants with respiratory symptoms. The laboratory confirmed rate of influenza among those 65 years and older is 43 cases per 100,000. The true rate of influenza in the elderly is likely to be higher than the laboratory confirmed rate.



Invasive *Haemophilus influenza* type B (Hib)

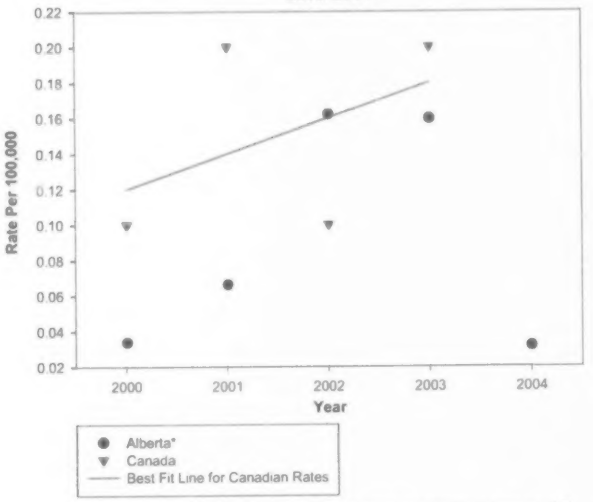
Haemophilus influenza type B (Hib) bacteria can cause meningitis (an infection of the lining of the brain). Hib can cause other severe infections in young children including pneumonia, epiglottitis (swelling of the opening to the windpipe), infections in the blood, joints, bones, body tissues, or in the outer covering of the heart. Prior to the introduction of Hib vaccination, Hib was the most common cause of childhood bacterial meningitis. Fortunately, with the introduction of the conjugate vaccine in the late 1980's, the incidence of Hib is much lower than in the past.

Incidence Rate

Only one case of invasive Hib was reported in 2004. The case was an adult female. The number of cases of invasive Hib has been decreasing, likely due to routine childhood immunization. Only 14 cases of invasive Hib have been reported since 2000; and of these cases five were among those less than five years of age. The 2004 rate of invasive Hib in Alberta is lower than the Canadian rate trend.

As only one case of invasive Hib was reported in 2004, no age or geographic distribution of the case is reported here.

Haemophilus Influenzae type B (Hib) Estimated Incidence Rates, 2000-2004



*Alberta rates are considered accurate to within 0.1 cases per 100,000 19 times out of 20

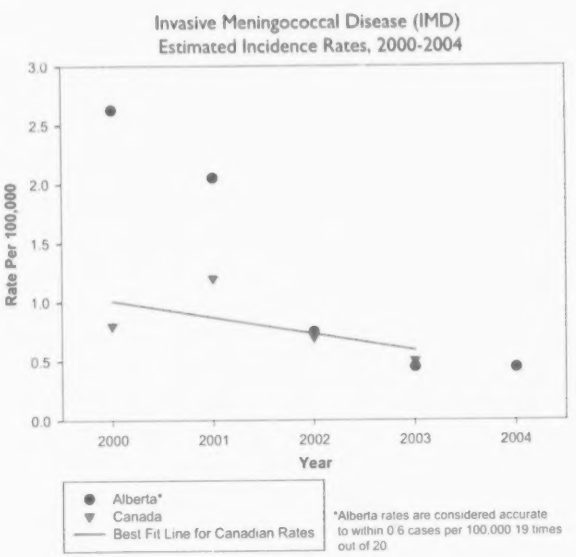
Invasive Meningococcal Disease (IMD)

Invasive meningococcal disease (IMD) is caused by the bacteria *Neisseria meningitidis*. This bacterium causes meningococcal meningitis (an infection of the lining of the brain). Symptoms of IMD include sudden onset of fever, severe headache, a stiff neck, rash, nausea and vomiting. IMD is spread through direct contact with mucous or respiratory droplets from the nose and throat of an infected person.

A vaccine to prevent against one of Alberta's most common strains of meningococcal bacteria (serogroup C) is provided to infants through the Alberta's routine Childhood Immunization program in 2002. At present there is no vaccine available in Alberta to protect against serotype B.

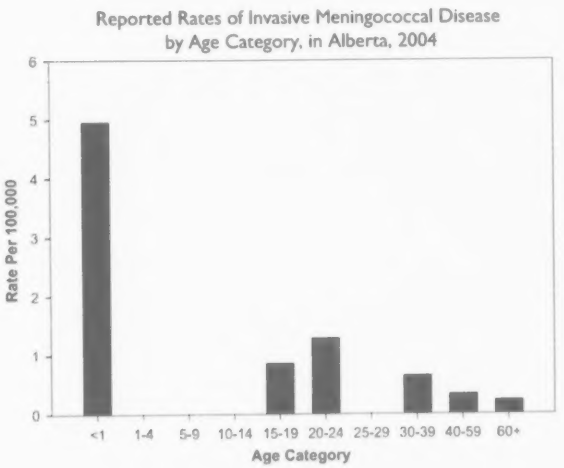
Incidence Rate

In 2004, there were 14 cases of invasive meningococcal disease (IMD) in Alberta. The overall rate in the population of Alberta for 2004 was 0.4 cases per 100,000. This was a significant decrease from previous years. Alberta experienced a significant outbreak of IMD starting in December 1999. This decrease in IMD is due to the universal infant meningococcal conjugate vaccination program in Alberta in 2002. The Alberta rate of IMD is consistent with the Canadian rate trend.



Age Distribution

The rate of IMD in Alberta is typically highest in those less than two years of age. The 2004 rate is consistent with previous years with the highest rate of IMD cases occurring in infants less than one year of age. Although the rate is highest in those less than one year of age, only two cases were reported in 2004 and both were serogroup B, which is not included in the meningococcal vaccine.



Geographic Distribution

The 2004 rate of IMD by regional health authority varied from a high of one case per 100,000 to zero. Only three regional health authorities reported cases of IMD: Chinook Regional Health Authority, Calgary Health Region and the Capital Health. Of the 11 cases in the Calgary Health Region, none of the cases were associated with one another.

Invasive Meningococcal Disease (IMD) Rates by Regional Health Authority, 2004

1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

Invasive Pneumococcal Disease (IPD)

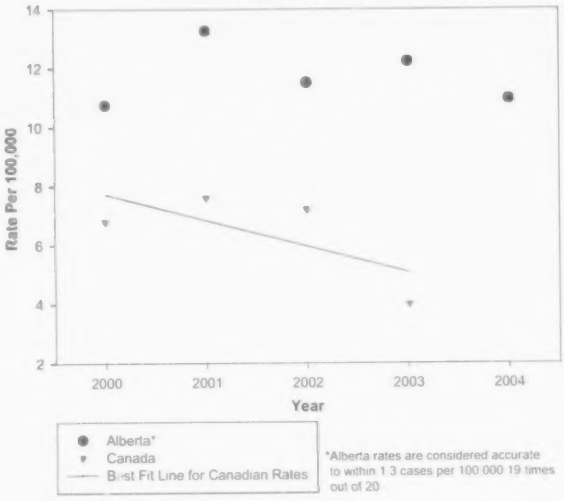
Pneumococcal disease is caused by *Streptococcus pneumoniae*, of which there are approximately 90 strains. It is a leading cause of invasive bacterial infections in infants and children such as meningitis, serious blood infections and pneumonia. Symptoms of pneumococcal pneumonia include high fever, cough with production of mucus, shaking chills, breathlessness, and chest pain that increases with breathing and coughing. Pneumococcal disease is transmitted by respiratory droplets of an infected person.

A conjugate vaccine provided through the Alberta Childhood Immunization program helps protect young children against seven of the most common strains and will prevent 90 per cent of Invasive Pneumococcal Disease (IPD). This vaccine was introduced in September of 2002. In 1999, Alberta Health and Wellness began providing pneumococcal polysaccharide vaccine to groups of individuals at risk of pneumococcal disease or complications, including adults 65 years of age or older.

Incidence Rate

In 2004, there were 348 cases of Invasive Pneumococcal Disease (IPD) in Alberta. The overall rate in the population of Alberta for 2004 was 10.9 cases per 100,000. This was not a significant decrease from the previous few years, but the age distribution has changed; fewer infants are becoming ill with IPD. Alberta's IPD rate remains higher than the 2003 Canadian rate of four cases per 100,000 .

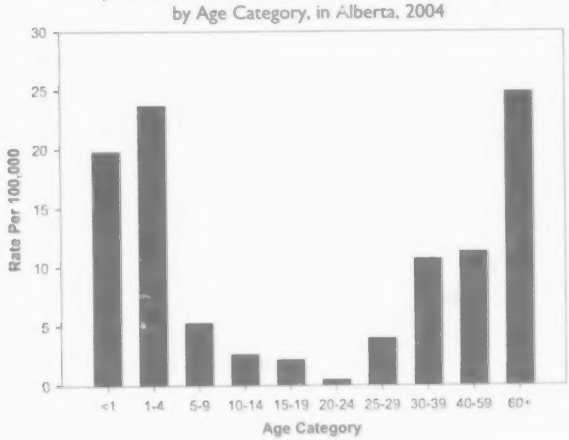
Invasive Pneumococcal Disease (IPD) Estimated Incidence Rates, 2000-2004



Age Distribution

The rate of IPD varies by age group, and as expected the rate was much higher in young children and the elderly. The rate of IPD in those less than one year of age was lower than previous years, likely due to the introduction of routine infant immunization. The highest rate of IPD is among those one to four years of age (23.7 cases per 100,000). The majority of cases (113 cases) were reported in those 60 years of age and older.

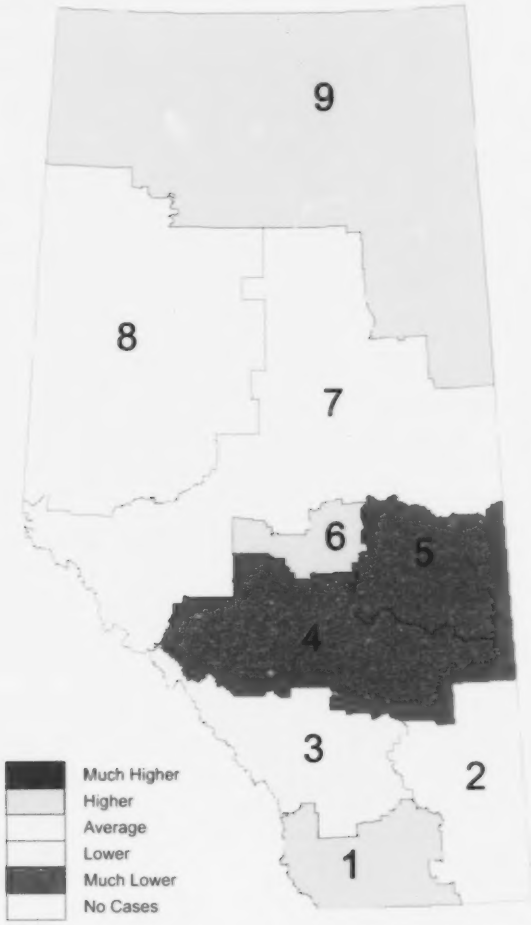
Reported Rates of Invasive Pneumococcal Disease (IPD) by Age Category, in Alberta, 2004



Geographic Distribution

The rate of IPD varies little by regional health authority. The lowest rate is in East Central Health, while the highest rates are in the Northern Lights Health Region.

Invasive Pneumococcal Disease (IPD) Rates by Regional Health Authority, 2004



1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

Mumps

Mumps is caused by a virus that is a member of the *Paramyxoviridae* family. Symptoms of mumps include fever, headache and swollen glands around the jaw. Sometimes mumps causes inflammation of the spinal cord and covering of the brain (meningitis) but usually this does not cause permanent damage. Mumps is spread through direct contact with saliva or respiratory droplets of an infected person, or through airborne transmission.

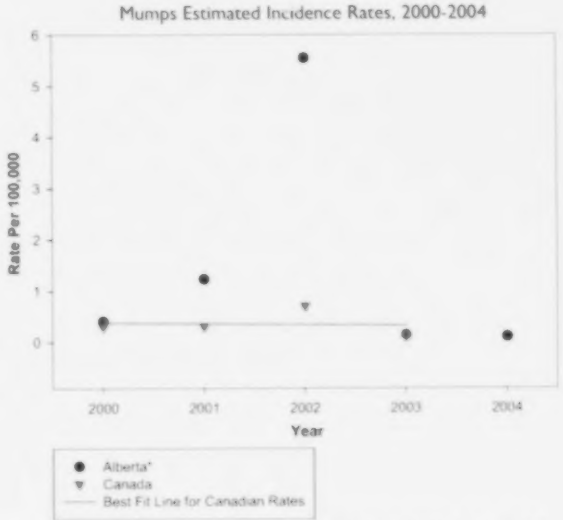
Incidence Rate

There were three cases of mumps in Alberta in 2004. All of the cases were in adults, greater than 30 years of age, with no history of immunization.

The rate of mumps in Alberta for 2004 is 0.1 cases per 100,000, which is consistent with previous years, excluding 2002. In fall 2001 through 2002 there was a significant mumps outbreak in Northern Alberta in an unimmunized population, which led to a greater than 10-fold increase in the provincial number of cases in 2002.

As only three cases of mumps were reported in 2004, no age or geographic distribution of cases is reported here. The low incidence of mumps disease is attributable to a mumps containing vaccine offered to children.

Mumps Estimated Incidence Rates, 2000-2004



*Alberta rates are considered accurate to within 0.4 cases per 100,000 19 times out of 20

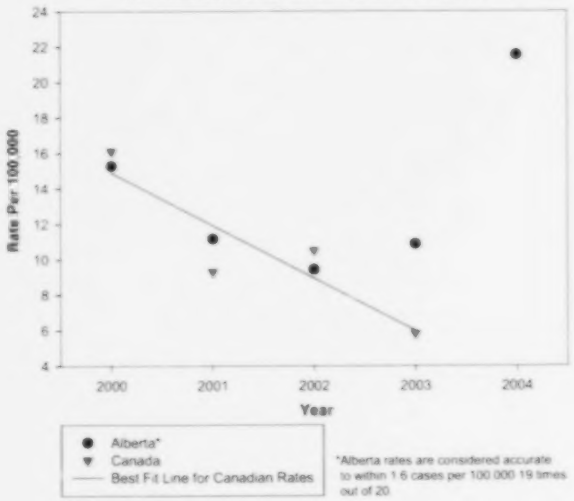
Pertussis (Whooping Cough)

Pertussis is caused by the bacteria *Bordetella pertussis*. Pertussis is commonly referred to as whooping cough due to the characteristic "whoop" sound that occurs during severe coughing spells. This bacterium infects the lining of the airways. It can cause coughing spells so severe that infected individuals have a difficult time breathing. The coughing spells can last weeks or months. Complications of pertussis are more severe in those less than one year of age. Pneumonia, convulsions, brain injury, and death can occur in these cases. Pertussis is spread through direct contact with saliva or respiratory droplets of an infected person. A more effective acellular pertussis containing vaccine, introduced in the Alberta Childhood Immunization program in 1997, helps protect against pertussis. In September 2004, an acellular pertussis containing vaccine was introduced for adolescents in grade 9 in Alberta.

Incidence Rate

The rate of pertussis in Alberta in 2004 was 21.5 cases per 100,000. This is twice the rate from 2003 (10.7 cases per 100,000) and is due to pertussis outbreaks throughout the province in 2004. There were 15 outbreaks and several more clusters of cases reported in 2004. A total of 684 cases of pertussis were reported in 2004.

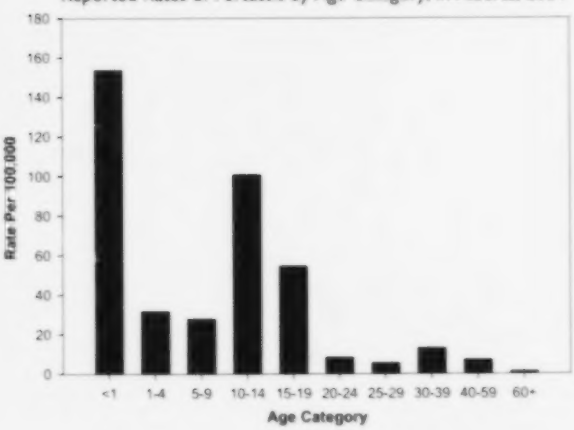
Pertussis Estimated Incidence Rates, 2000-2004



Age Distribution

The age groups most affected by pertussis outbreaks in 2004 were infants less than one year of age and those 10 to 14 years of age. The rate of pertussis is highest in infants less than one year; 153.8 cases per 100,000 infants. The next highest rate is among those 10 to 14 years of age; 100 cases per 100,000. In 2004, those 10 to 14 years of age were possibly susceptible to pertussis infection. The majority of these cases had only received whole pertussis containing vaccine as young children, and the effectiveness of the whole cell vaccine may have decreased with time.

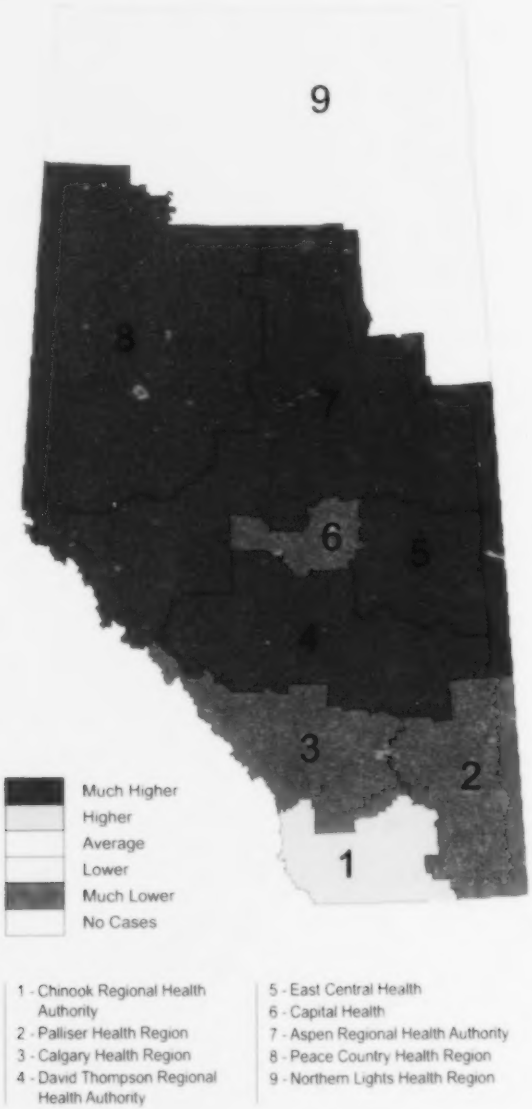
Reported Rates of Pertussis by Age Category, in Alberta, 2004



Geographic Distribution

The rate of pertussis in 2004 varied significantly by regional health authority. The rate of pertussis was highest in the David Thompson Regional Health Authority, which had 221 cases for a rate of 76.2 cases per 100,000. The high rate in the David Thompson Regional Health Authority is partially due to a major outbreak with more than 80 cases. Other regional health authorities with higher than expected rates were Peace Country Health, Aspen Regional Health Authority, and East Central Health. All of these regions reported at least one outbreak of pertussis in 2004.

Pertussis Rates by Regional Health Authority, 2004



1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

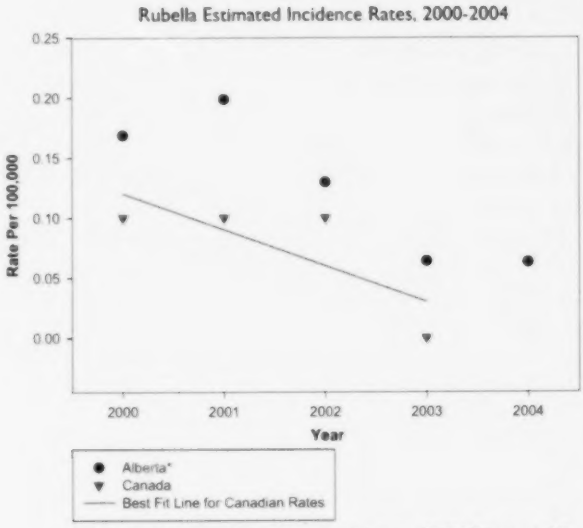
Rubella

Rubella is caused by the rubella virus a member of the *Togaviridae* family. It is also called German measles. It causes a slight fever, sore throat, rash and swelling of the neck glands that lasts about three days. Painful and swollen joints may occur in some people. If a pregnant woman is infected with rubella she may have a miscarriage, or the baby may be born with a serious disability (congenital rubella syndrome). Rubella is preventable through routine immunization in children.

Incidence Rate

In 2004, there were two adult-male cases of rubella in Alberta. There is no association between the two cases. The overall rate in the population of Alberta for 2004 was 0.1 cases per 100,000. This is a decrease from previous years. The number of cases of rubella remains low, with only 19 cases reported in the past five years. Although the number of case remains low, the rate of rubella in Alberta remains slightly higher than the Canadian rate trend.

As only two cases of rubella were reported in 2004, no age or geographic distribution of the cases is reported here.



*Alberta rates are considered accurate to within 0.2 cases per 100,000 19 times out of 20

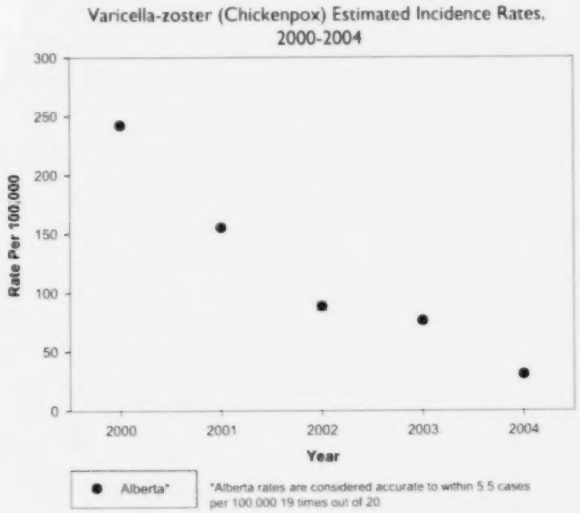
Varicella-zoster (Chickenpox)

Chickenpox is caused by the varicella-zoster virus. The virus causes an itchy rash, which looks like small water blisters. Most people recover without lasting effects but some people may develop complications. Chickenpox spreads easily from person to person. It can spread through the air when a person is in the room with someone who has chickenpox, and may be spread by someone who has the disease even before the typical rash breaks out. Chickenpox can also be spread through contact with fluid from a chickenpox blister or saliva from an infected person. Chickenpox virus can reactivate later in life to cause shingles (varicella-zoster), a painful rash that can be very severe, especially in the elderly.

Chickenpox vaccine is offered through Alberta's childhood immunization program. Routine vaccination against chickenpox, which began in the spring of 2001, is thought to have contributed to the decrease.

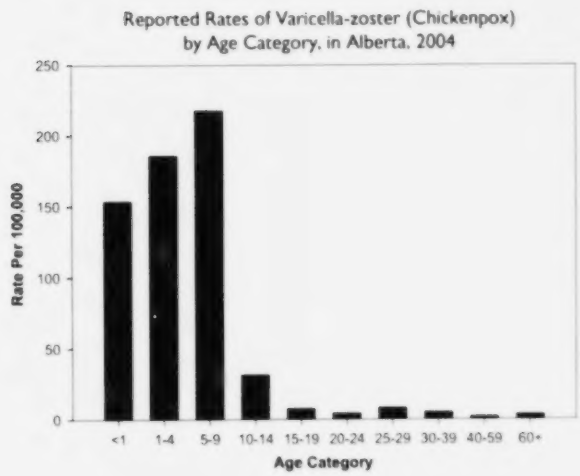
Incidence Rate

The rate of chickenpox is decreasing in Alberta. Chickenpox is an under reported disease, as reporting is via aggregate data.



Age Distribution

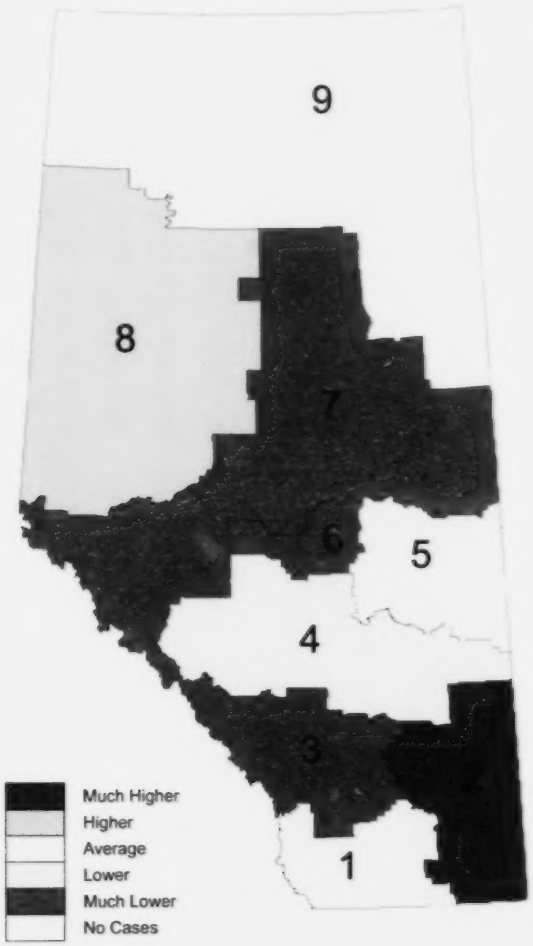
The age distribution of chickenpox is as expected for childhood illnesses, with those most affected under the age of 10 years. Cases in adults are less common, generally more severe, and are likely to be reported. In general, less than 30 per cent of chickenpox cases are reported.



Geographic Distribution

The reported rate of varicella-zoster (chickenpox) varies by regional health authority. The rate in 2004 is highest in the Palliser Health Region.

Varicella-zoster (Chickenpox) Rates by Regional Health Authority, 2004



1 - Chinook Regional Health Authority
2 - Palliser Health Region
3 - Calgary Health Region
4 - David Thompson Regional Health Authority
5 - East Central Health
6 - Capital Health
7 - Aspen Regional Health Authority
8 - Peace Country Health Region
9 - Northern Lights Health Region

Appendix A:
2003 Immunization Coverage Rates

Alberta Health and Wellness

10025 Jasper Avenue
P.O. Box 1360, Station Main
Edmonton, Alberta T5J 2N3

September 22, 2005

To: All Medical Officers of Health
Communicable Disease Contacts

Re: **2003 Immunization Coverage Rates for One- and Two- Year Old Children**

Thank you for submitting information on immunizations in your region for 2003. The attached figures and tables summarize coverage rates[1] in Alberta for immunization against:

- Diphtheria, tetanus, pertussis, polio and *haemophilus influenzae type b* (Hib) (for one- and two-year olds)
- Measles, mumps and rubella (for two-year olds)

As illustrated in the attached figures, immunization coverage rates in Alberta have not improved and the disparity between our provincial goals and these coverage rates continues. Specifically:

- **DTaP-IPV-Hib (3rd dose by one year of age)**
  The overall provincial coverage rate in 2003 was 8.8% below our goal of 95%. All regions were significantly below this target.

- **DTaP-IPV-Hib (4th dose by two years of age)**
  The overall provincial coverage rate in 2003 was 19.1% below our goal of 97%. All regions were significantly below this target.

- **MMR (1st dose by two years of age)**
  The overall provincial coverage rate in 2003 was 7.7% below our goal of 98%. Only one region met this target.

Thanks to your efforts, five out of nine regions are now fully submitting individual level data directly to the provincial Immunization/Adverse Reactions to immunization (IMM/ARI) repository, and we are working with the other regions to facilitate this data transfer. This has improved efficiency and accuracy in reporting, and will allow for further analyses to investigate and target factors influencing low immunization coverage rates in these regions.

As you know, immunization has repeatedly been demonstrated to be one of the most effective medical interventions to prevent disease. In order to attain the highest degree of community protection against vaccine-preventable diseases, it is essential that we achieve and maintain high immunization coverage rates.

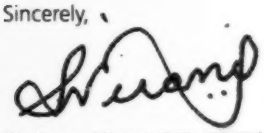
[1] The methodology for the calculations is attached.

I am pleased to inform you that as part of the "Third Way" initiative, a province-wide Immunization Strategy will be launched to support evidence-based, innovative strategies to improve rates of immunization. The development of this strategy will include a comprehensive literature review and environmental scan, as well as targeted consultations with stakeholders and collaboration with the Alberta Immunization Strategy Working Group. This working group will include representatives from the Council of Medical Officers of Health, the Alberta Council of Public Health Nurses on Communicable Disease Control, First Nations and Inuit Health Branch, Regional Shared Information Program, front-line health care professionals, and Alberta Health and Wellness.

We are looking forward to working with you on the Alberta Immunization Strategy, and hope that together we can overcome barriers and implement strategies that will help attain the provincial goals for immunization and protect our population against preventable diseases.

Thank you for your continued support.

Sincerely,



Shainoor Virani, MD, FRCP(C)
Associate Provincial Health Officer

/ss
Attachments

cc: Wayne McKendrick, Assistant Deputy Minister, Public Health Division
Dr. Nicholas Bayliss, Provincial Health Officer
Dr. Karen Grimsrud, Deputy Provincial Health Officer
Dr. Jodi Abbott, Executive Director, Disease Control and Prevention
Alex MacKenzie, Executive Director, Health Surveillance
Neil MacDonald, Executive Director, Population Health Strategies
Agnes Honish, Senior Manager, Communicable Disease Control and Emergency Planning, Disease Control and Prevention
Elaine Sartison, Senior Manager, Immunization Program, Disease Control and Prevention
Roxanne Hamm, Nurse Consultant, Immunization Program
Susan Shaw, Team Lead, Public Health Information, Health Surveillance
Jill Svenson, Business Analyst, Public Health Information, Health Surveillance
Larry Svenson, Manager, Epidemiologic Surveillance, Health Surveillance

Methodology Used for Calculation of Immunization Coverage

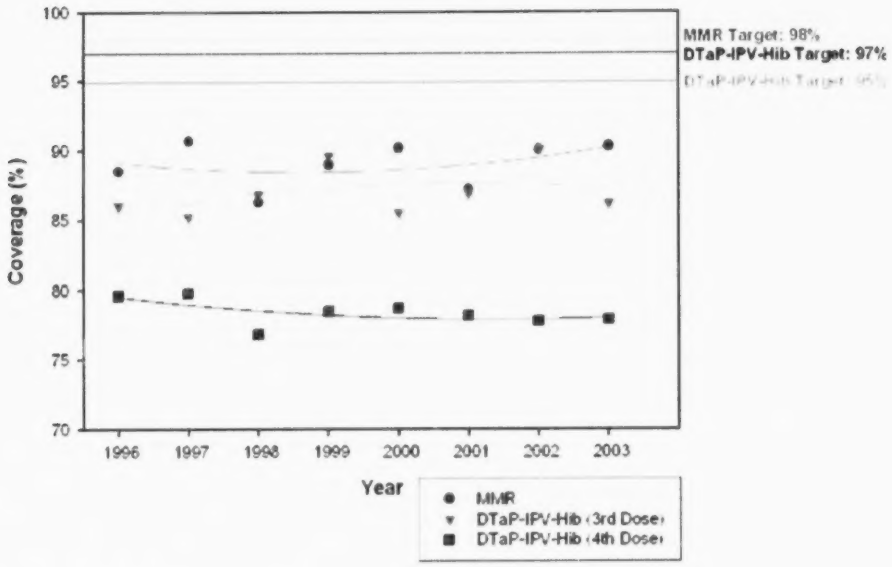
The following information describes the method used for these calculations:

1. **Numerator (number of immunizations given)**
   Regional Health Authorities (RHAs) submit this data to Alberta Health and Wellness (AHW). The data was submitted in various formats, including CHIIS or CASEWORKS disks and reports generated from RHA applications.

   Coverage rates *include* immunizations given by First Nations and Inuit Health Branch.

2. **Denominator**
   To be consistent with other population-based calculations used by Alberta Health and Wellness, the AHW mid-year Alberta Health Care Insurance Plan registration data was used.

Figure 1. Immunization Coverage Rates for One and Two Year Old Children
In Alberta, 1996 to 2003



Year	MMR	DTaP-IPV-Hib (3rd Dose)	DTaP-IPV-Hib (4th Dose)
1996	88.5%	86.0%	79.6%
1997	90.7%	85.2%	79.8%
1998	86.3%	86.8%	76.8%
1999	89.0%	89.6%	78.5%
2000	90.2%	85.5%	78.7%
2001	87.2%	86.9%	78.2%
2002	90.1%	90.1%	77.8%
2003	90.3%	86.2%	77.9%

MMR (1st dose)

Our goal is for 98% of two-year old children to have received MMR vaccine.

DTaP-IPV-Hib (3rd dose)

Our goal is for 95% of one-year old children to have received 3 doses of diphtheria, tetanus, pertussis and Hib vaccines and at least 2 doses of polio vaccine.

DTaP-IPV-Hib (4th dose)

Our goal is for 97% of two-year old children to have received 4 doses of diphtheria, tetanus, pertussis, and Hib vaccines and at least 3 doses of polio vaccine.

Figure 2a. Immunization Coverage Rates for DTaP-IPV-Hib (3rd Dose by One Year of Age) by Regional Health Authority, Compared to Provincial Target, 2003

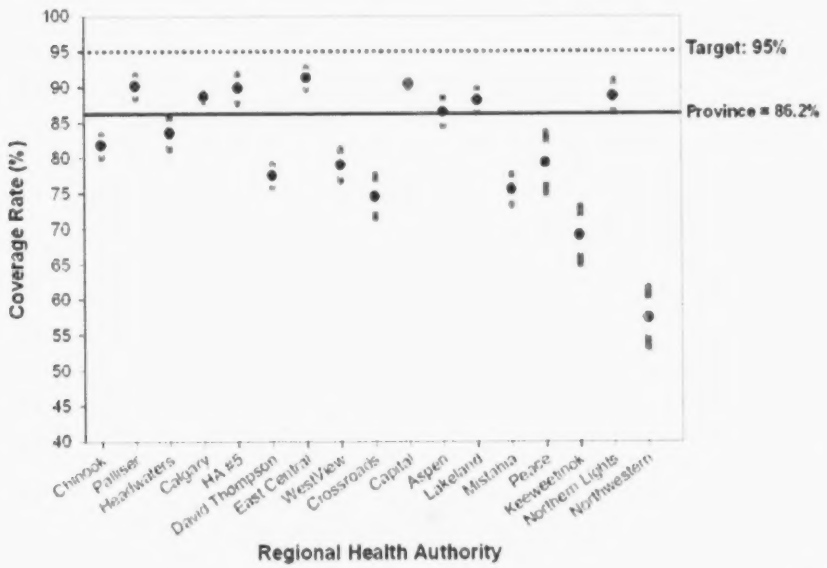


Figure 2a. Immunization Coverage Rates for DTaP-IPV-Hib (3rd Dose by One Year of Age) by Regional Health Authority, Compared to Provincial Target, 2003

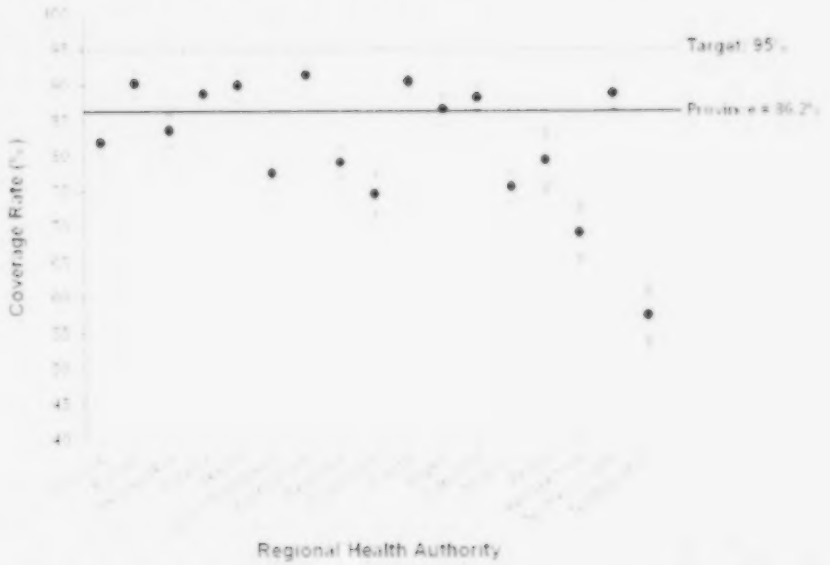


Figure 2b. Immunization Coverage Rates for DTaP-IPV-Hib (4th Dose by Two Years of Age) by Regional Health Authority, Compared to Provincial Target, 2003

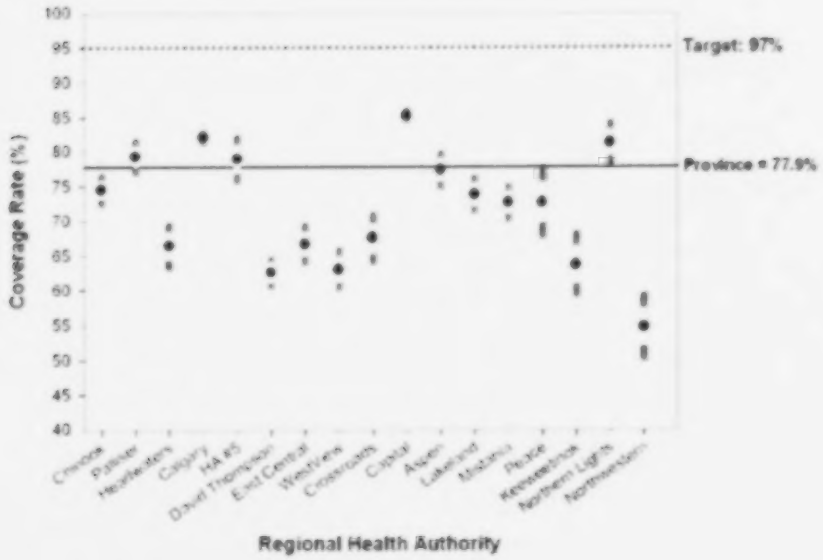


Figure 2c. Immunization Coverage Rates for MMR (by Two Years of Age) by Regional Health Authority, Compared to Provincial Target, 2003

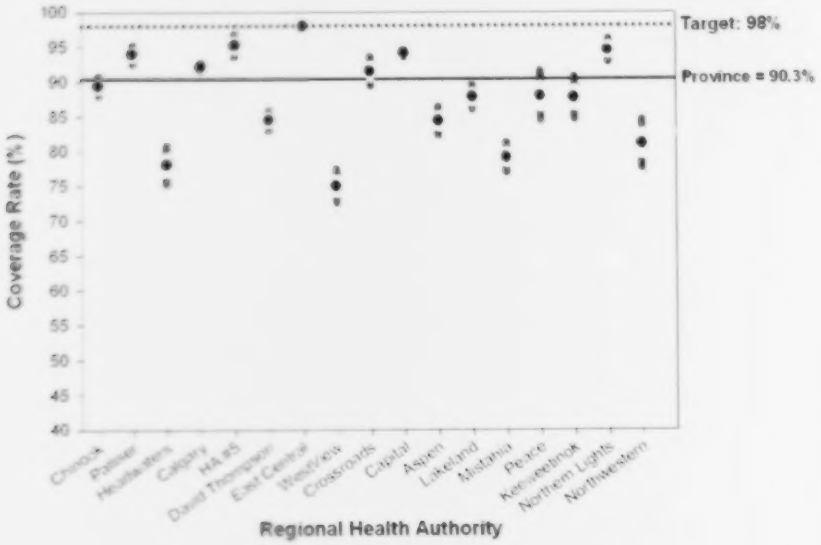


Figure 2b. Immunization Coverage Rates for DTaP-IPV-Hib (4th Dose by Two Years of Age) by Regional Health Authority, Compared to Provincial Target, 2003

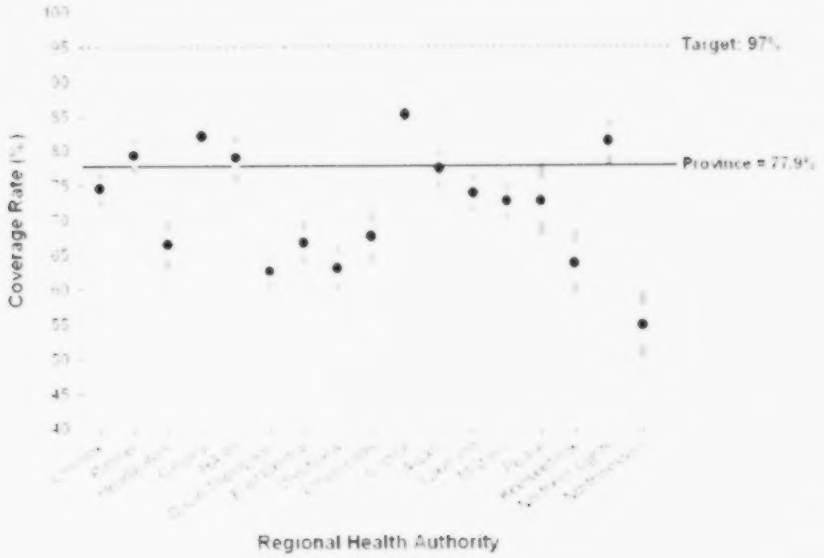


Figure 2c. Immunization Coverage Rates for MMR (by Two Years of Age) by Regional Health Authority, Compared to Provincial Target, 2003

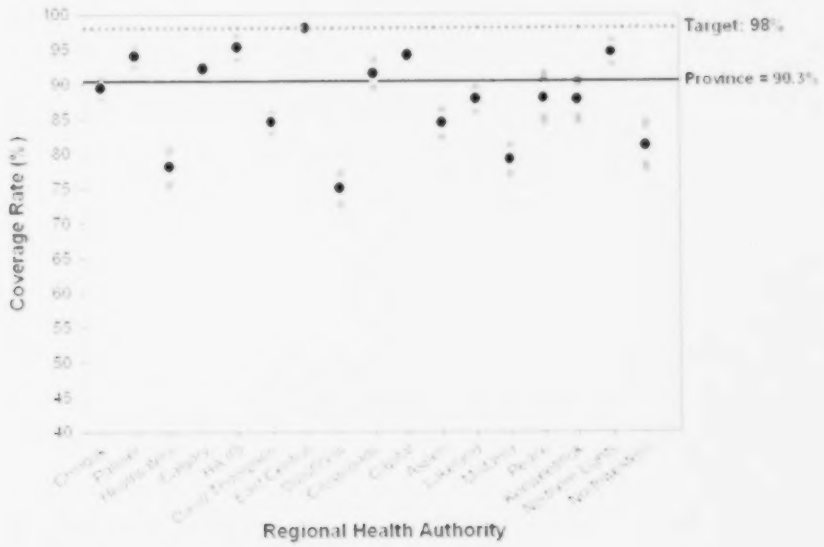


Figure 3a.
Immunization Coverage Rates for DTaP-IPV-Hib (One Year Olds)
Alberta 2000 to 2003

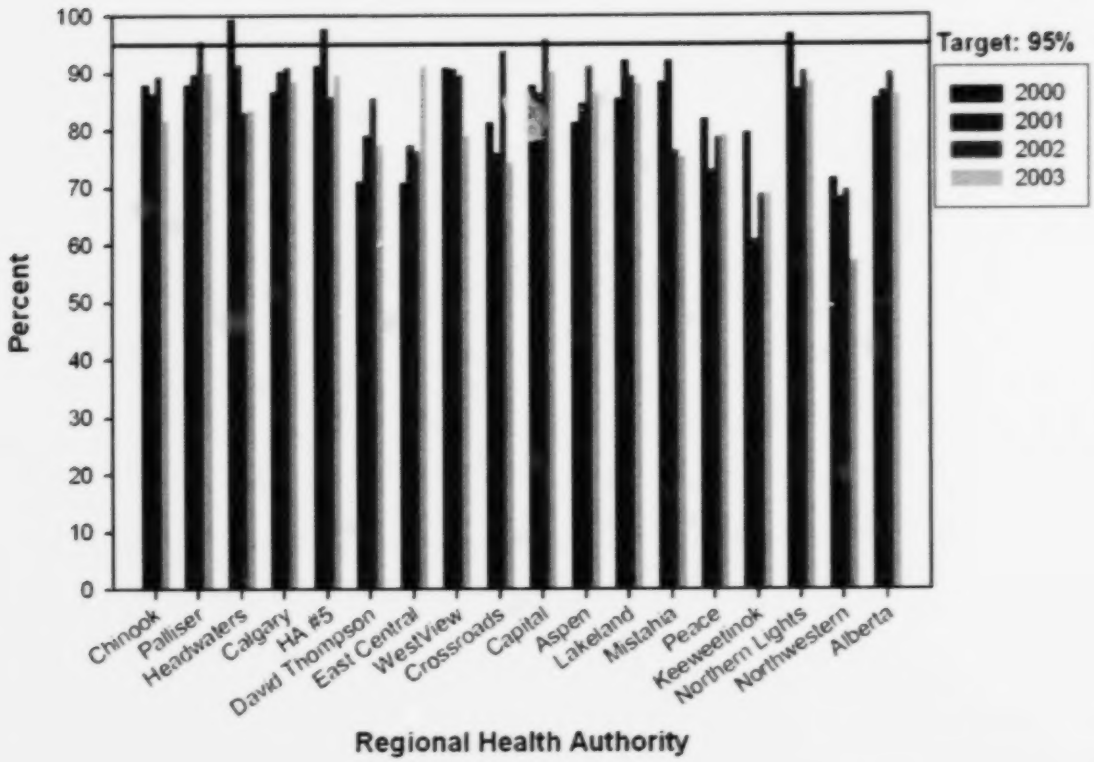


Figure 3b.
Immunization Coverage Rates for DTaP-IPV-Hib (Two Year Olds)
Alberta 2000 to 2003

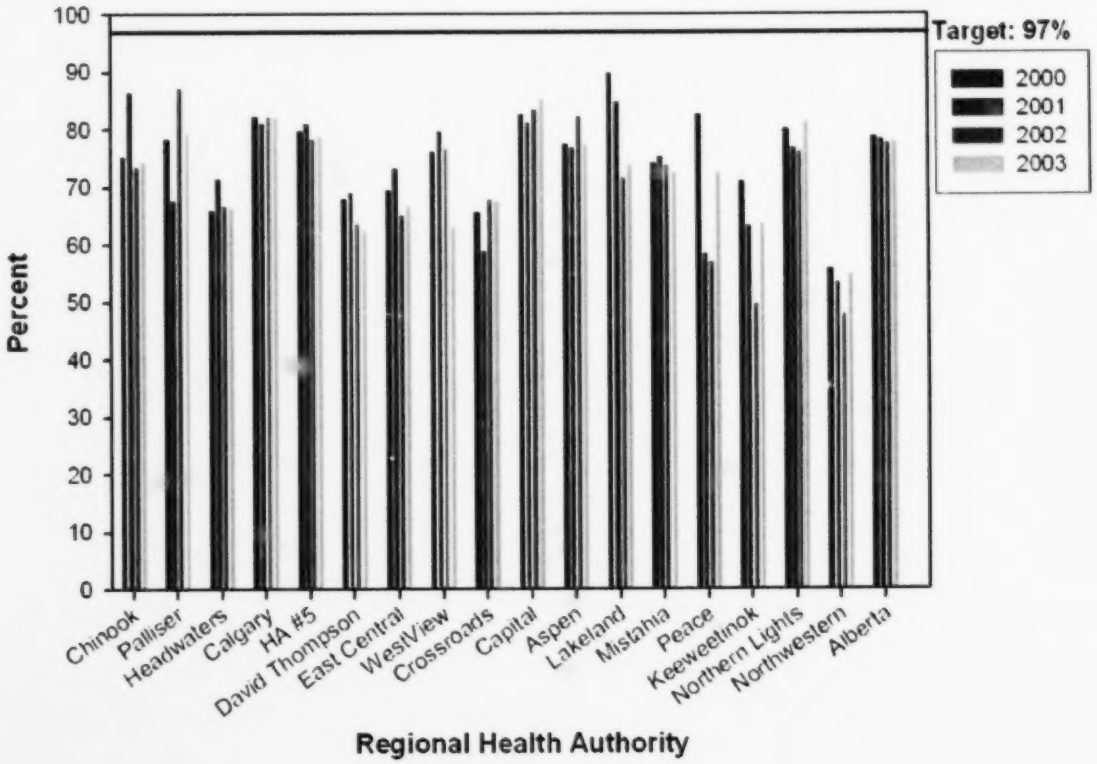
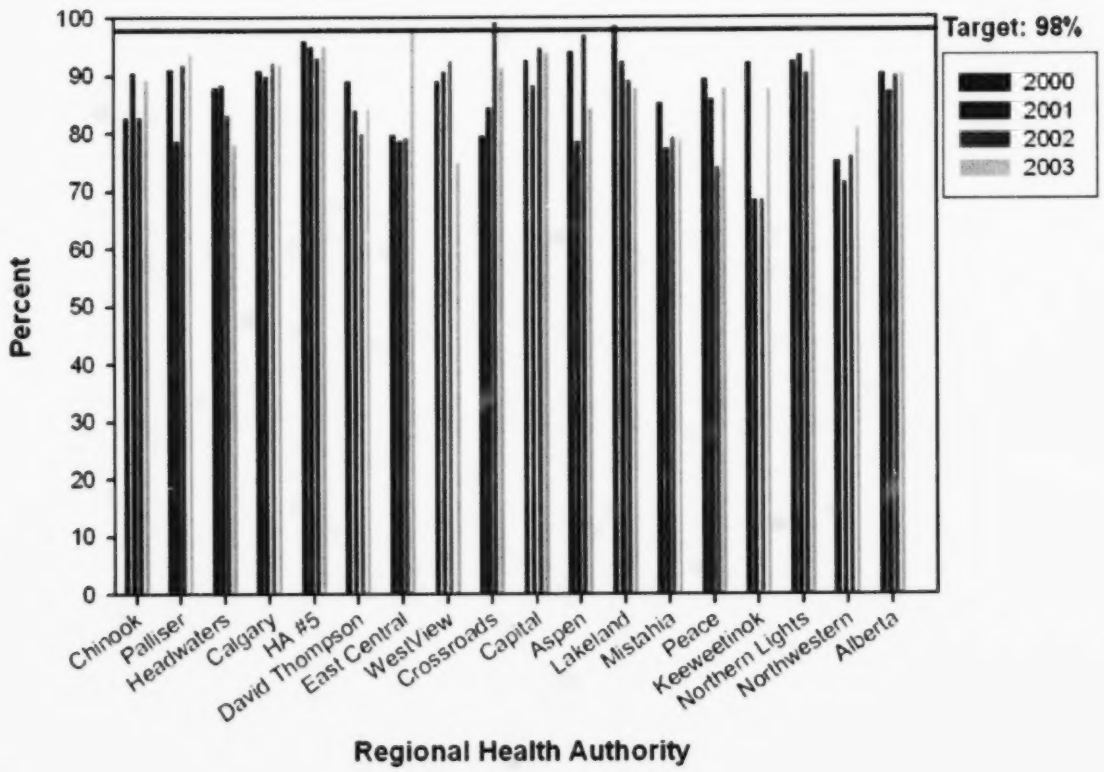


Figure 3c.
Immunization Coverage Rates for MMR (Two Year Olds)
Alberta 2000 to 2003



Appendix B:
Statistical Tables

Blood Borne Pathogens/ Creutzfeldt-Jakob Disease (CJD)

Hepatitis B: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	0	154086	0.0	0.00	0.00	0.00
Palliser	4	99768	4.0	2.00	0.08	7.94
Calgary	8	1149491	0.7	0.25	0.21	1.18
David Thompson	0	290093	0.0	0.00	0.00	0.00
East Central	1	110221	0.9	0.91	-0.87	2.69
Capital	28	993921	2.8	0.53	1.77	3.86
Aspen	1	176184	0.6	0.57	-0.54	1.68
Peace Country	3	133170	2.3	1.30	-0.30	4.80
Northern Lights	1	71850	1.4	1.39	-1.34	4.12
Total	**46**	**3,178,784**	**1.4**	**0.21**	**1.03**	**1.87**

Hepatitis B: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error	95% CI Lower	95% CI Upper
2000	61	2968536	2.1	0.26	1.54	2.57
2001	92	3022891	3.0	0.32	2.42	3.67
2002	44	3086646	1.4	0.21	1.00	1.85
2003	60	3134337	1.9	0.25	1.43	2.40
2004	46	3178784	1.4	0.21	1.03	1.87

Hepatitis B: 2004 Cases and Rates for Males by Age Group

Males Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<15	0	324969	0.0	0.00	0.00	0.00
15-19	0	119963	0.0	0.00	0.00	0.00
20-24	1	118433	0.8	0.84	-0.81	2.50
25-29	8	114934	7.0	2.46	2.14	11.78
30-39	7	234259	3.0	1.13	0.77	5.20
40-59	15	465854	3.2	0.83	1.59	4.85
60+	2	210360	1.0	0.67	-0.37	2.27

Hepatitis B: 2004 Cases and Rates for Females by Age Group

Females Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<15	0	308809	0.0	0.00	0.00	0.00
15-19	0	114314	0.0	0.00	0.00	0.00
20-24	4	116575	3.4	1.72	0.07	6.79
25-29	1	113764	0.9	0.88	-0.84	2.60
30-39	2	233734	0.9	0.61	-0.33	2.04
40-59	5	458144	1.1	0.49	0.13	2.05
60+	1	244924	0.4	0.41	-0.39	1.21

Hepatitis C: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	55	154086	35.7	4.81	26.26	45.13
Palliser	37	99768	37.1	6.10	25.14	49.03
Calgary	560	1149491	48.7	2.06	44.68	52.75
David Thompson	170	290093	58.6	4.49	49.80	67.41
East Central	29	110221	26.3	4.89	16.74	35.89
Capital	586	993921	59.0	2.43	54.19	63.73
Aspen	79	176184	44.8	5.04	34.95	54.73
Peace Country	62	133170	46.6	5.91	34.97	58.14
Northern Lights	32	71850	44.5	7.87	29.11	59.97
Total	**1610**	**3,178,784**	**50.6**	**1.26**	**48.17**	**53.12**

Hepatitis C: Alberta Cases and Rates by Year of Diagnosis

Year	Alberta Cases	Population	Alberta Rate	std error	95% CI Lower	95% CI Upper
2000	2178	2968536	73.4	1.57	70.29	76.45
2001	2156	3022891	71.3	1.54	68.31	74.33
2002	1992	3086646	64.5	1.45	61.70	67.37
2003	1721	3134337	54.9	1.32	52.31	57.50
2004	1610	3178784	50.6	1.26	48.17	53.12

Hepatitis C: 2004 Cases and Rates for Males by Age Group

Males Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<15	5	324969	1.5	0.69	0.19	2.89
15-19	3	119963	2.5	1.44	-0.33	5.33
20-24	40	118433	33.8	5.34	23.31	44.24
25-29	73	114934	63.5	7.43	48.95	78.08
30-39	225	234259	96.0	6.40	83.50	108.59
40-59	650	465854	139.5	5.47	128.81	150.25
60+	43	210360	20.4	3.12	14.33	26.55
unknown	3					

Hepatitis C: 2004 Cases and Rates for Females by Age Group

Females Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<15	2	308809	0.6	0.46	-0.25	1.55
15-19	8	114314	7.0	2.47	2.15	11.85
20-24	33	116575	28.3	4.93	18.65	37.97
25-29	57	113764	50.1	6.63	37.10	63.11
30-39	150	233734	64.2	5.24	53.91	74.44
40-59	239	458144	52.2	3.37	45.55	58.78
60+	37	244924	15.1	2.48	10.24	19.97
unknown	6					

45 unknown age

HIV Infection: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	2	154086	1.3	0.92	-0.50	3.10
Palliser	12	99768	12.0	3.47	5.22	18.83
Calgary	70	1149491	6.1	0.73	4.66	7.52
David Thompson	6	290093	2.1	0.84	0.41	3.72
East Central	1	110221	0.9	0.91	-0.87	2.69
Capital	73	993921	7.3	0.86	5.66	9.03
Aspen	6	176184	3.4	1.39	0.68	6.13
Peace Country	2	133170	1.5	1.06	-0.58	3.58
Northern Lights	0	71850	0.0	0.00	0.00	0.00
Total	**172**	**3,178,784**	**5.4**	**0.41**	**4.60**	**6.22**

HIV: Alberta Cases and Rates by Year of Diagnosis

Year	Alberta Cases	Population	Alberta Rate	std error	95% CI Lower	95% CI Upper
2000	190	2968536	6.4	0.46	5.49	7.31
2001	173	3022891	5.7	0.44	4.87	6.58
2002	181	3086646	5.9	0.44	5.01	6.72
2003	160	3134337	5.1	0.40	4.31	5.90
2004	172	3178784	5.4	0.41	4.60	6.22

HIV: 2004 Cases and Rates for Males by Age Group

Males Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<15	0	324969	0.0	0.00	0.00	0.00
15-19	0	119963	0.0	0.00	0.00	0.00
20-24	5	118433	4.2	1.89	0.52	7.92
25-29	12	114934	10.4	3.01	4.53	16.35
30-39	40	234259	17.1	2.70	11.78	22.37
40-59	57	465854	12.2	1.62	9.06	15.41
60+	4	210360	1.9	0.95	0.04	3.76

HIV: 2004 Cases and Rates for Females by Age Group

Females Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<15	1	308809	0.3	0.32	-0.31	0.96
15-19	4	114314	3.5	1.75	0.07	6.93
20-24	9	116575	7.7	2.57	2.68	12.76
25-29	3	113764	2.6	1.52	-0.35	5.62
30-39	17	233734	7.3	1.76	3.82	10.73
40-59	18	458144	3.9	0.93	2.11	5.74
60+	2	244924	0.8	0.58	-0.32	1.95

Direct Contact and Respiratory Diseases

Congenital Cytomegalovirus: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	5	2968536	0.17	0.08
2001	4	3022891	0.13	0.07
2002	2	3086646	0.06	0.05
2003	0	3134337	0.00	0.00
2004	1	3178784	0.03	0.03

Invasive Group A Streptococcal Disease: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	13	154086	8.44	2.34	3.85	13.02
Palliser	3	99768	3.01	1.74	-0.40	6.41
Calgary	55	1149491	4.78	0.65	3.52	6.05
David Thompson	8	290093	2.76	0.97	0.85	4.67
East Central	3	110221	2.72	1.57	-0.36	5.80
Capital	51	993921	5.13	0.72	3.72	6.54
Aspen	5	176184	2.84	1.27	0.35	5.33
Peace Country	2	133170	1.50	1.06	-0.58	3.58
Northern Lights	1	71850	1.39	1.39	-1.34	4.12
Total	141	3,178,784	4.44	0.37	3.70	5.17

Invasive Group A Streptococcal Disease: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	149	2968536	5.0	0.41
2001	173	3022891	5.7	0.44
2002	119	3086646	3.9	0.35
2003	127	3134337	4.1	0.36
2004	141	3178784	4.4	0.37

Invasive Group A Streptococcal Disease: 2004 Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	4	40396	9.90	4.95	0.20	19.61
1-4	8	156338	5.12	1.81	1.57	8.66
5-9	7	208009	3.37	1.27	0.87	5.86
10-14	3	229035	1.31	0.76	-0.17	2.79
15-19	4	234277	1.71	0.85	0.03	3.38
20-24	9	235008	3.83	1.28	1.33	6.33
25-29	6	228698	2.62	1.07	0.52	4.72
30-39	26	467993	5.56	1.09	3.42	7.69
40-59	39	923998	4.22	0.68	2.90	5.55
60+	35	455284	7.69	1.30	5.14	10.23

Leprosy: Alberta Cases and Rates by Year of Onset

Year	Cases	Population	Rate	std error
2000	0	2968536	0.0	0.00
2001	2	3022891	0.1	0.05
2002	0	3086646	0.0	0.00
2003	3	3134337	0.1	0.06
2004	1	3178784	0.0	0.03

Tuberculosis: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	1	154086	0.65	0.65	-0.62	1.92
Palliser	4	99768	4.01	2.00	0.08	7.94
Calgary	48	1149491	4.18	0.60	2.99	5.36
David Thompson	3	290093	1.03	0.60	-0.14	2.20
East Central	0	110221	0.00	0.00	0.00	0.00
Capital	44	993921	4.43	0.67	3.12	5.73
Aspen	4	176184	2.27	1.14	0.05	4.50
Peace Country	4	133170	3.00	1.50	0.06	5.95
Northern Lights	1	71850	1.39	1.39	-1.34	4.12
Total	109	3,178,794	3.43	0.33	2.79	4.07

Tuberculosis: Alberta Cases and Rates by Year of Diagnosis

Year	Alberta Cases	Population	Alberta Rate	std error
2000	128	2968536	4.3	0.38
2001	116	3022891	3.8	0.36
2002	128	3086646	4.1	0.37
2003	110	3134337	3.5	0.33
2004	109	3178784	3.4	0.33

Tuberculosis: 2004 Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
0-4	1	196734	0.51	0.51	-0.49	1.50
5-9	0	208009	0.00	0.00	0.00	0.00
10-14	0	229035	0.00	0.00	0.00	0.00
15-19	4	234277	1.71	0.85	0.03	3.38
20-24	10	235008	4.26	1.35	1.62	6.89
25-29	13	228698	5.68	1.58	2.59	8.77
30-39	16	467993	3.42	0.85	1.74	5.09
40-59	38	923998	4.11	0.67	2.80	5.42
60+	27	455284	5.93	1.14	3.69	8.17

Varicella-zoster (Shingles): 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	4	154086	2.6	1.30	0.05	5.14
Palliser	0	99768	0.0	0.00	0.00	0.00
Calgary	19	1149491	1.7	0.38	0.91	2.40
David Thompson	14	290093	4.8	1.29	2.30	7.35
East Central	1	110221	0.9	0.91	-0.87	2.69
Capital	15	993921	1.5	0.39	0.75	2.27
Aspen	0	176184	0.0	0.00	0.00	0.00
Peace Country	1	133170	0.8	0.75	-0.72	2.22
Northern Lights	0	71850	0.0	0.00	0.00	0.00
Total	**54**	**3,178,784**	**1.7**	**0.23**	**1.25**	**2.15**

Varicella-zoster (Shingles): Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error	95% CI Lower	95% CI Upper
2000	33	2968536	1.1	0.19	0.73	1.49
2001	24	3022891	0.8	0.16	0.48	1.11
2002	26	3086646	0.8	0.17	0.52	1.17
2003	27	3134337	0.9	0.17	0.54	1.19
2004	54	3178784	1.7	0.23	1.25	2.15

Varicella-zoster (Shingles): 2004 Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	0	40396	0	0	0	0
1-4	2	156338	1.3	0.90	-0.49	3.05
5-9	2	208009	1.0	0.68	-0.37	2.29
10-14	4	229035	1.7	0.87	0.03	3.46
15-19	1	234277	0.4	0.43	-0.41	1.26
20-24	2	235008	0.9	0.60	-0.33	2.03
25-29	2	228698	0.9	0.62	-0.34	2.09
30-39	3	467993	0.6	0.37	-0.08	1.37
40-59	7	923998	0.8	0.29	0.20	1.32
60+	30	455284	6.6	1.20	4.23	8.95

Amoebiasis: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	3	154086	1.95	1.12	-0.26	4.15
Palliser	0	99768	0.00	0.00	0.00	0.00
Calgary	37	1149491	3.22	0.53	2.18	4.26
David Thompson	3	290093	1.03	0.60	-0.14	2.20
East Central	2	110221	1.81	1.28	-0.70	4.33
Capital	10	993921	1.01	0.32	0.38	1.63
Aspen	1	176184	0.57	0.57	-0.54	1.68
Peace Country	1	133170	0.75	0.75	-0.72	2.22
Northern Lights	0	71850	0.00	0.00	0.00	0.00
Total	**57**	**3,178,784**	**1.79**	**0.24**	**1.33**	**2.26**

Amoebiasis: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	56	2968536	1.9	0.25
2001	49	3022891	1.6	0.23
2002	40	3086646	1.3	0.20
2003	58	3134337	1.9	0.24
2004	54	3178784	1.7	0.23

Amoebiasis: 2004 Cases by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	1	40396	2.48	2.48	-2.38	7.33
1-4	3	156338	1.92	1.11	-0.25	4.09
5-9	2	208009	0.96	0.68	-0.37	2.29
10-14	5	229035	2.18	0.98	0.27	4.10
15-19	4	234277	1.71	0.85	0.03	3.38
20-24	4	235008	1.70	0.85	0.03	3.37
25-29	4	228698	1.75	0.87	0.03	3.46
30-39	14	467993	2.99	0.80	1.42	4.56
40-59	16	923998	1.73	0.43	0.88	2.58
60+	4	455284	0.88	0.44	0.02	1.74

Campylobacteriosis: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	92	154086	59.71	6.22	47.51	71.90
Palliser	52	99768	52.12	7.23	37.96	66.28
Calgary	394	1149491	34.28	1.73	30.89	37.66
David Thompson	90	290093	31.02	3.27	24.62	37.43
East Central	42	110221	38.11	5.88	26.58	49.63
Capital	161	993921	16.20	1.28	13.70	18.70
Aspen	38	176184	21.57	3.50	14.71	28.43
Peace Country	25	133170	18.77	3.75	11.41	26.13
Northern Lights	12	71850	16.70	4.82	7.25	26.15
Total	**906**	**3,178,784**	**28.50**	**0.95**	**26.65**	**30.36**

Campylobacteriosis: Alberta Cases and Rates by Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	1185	2968536	39.9	1.16
2001	1234	3022891	40.8	1.16
2002	1397	3086646	45.3	1.21
2003	1107	3134337	35.3	1.06
2004	906	3178784	28.5	0.95

Campylobacteriosis: 2004 Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	27	40396	66.84	12.86	41.64	92.04
1-4	118	156338	75.48	6.95	61.86	89.09
5-9	56	208009	26.92	3.60	19.87	33.97
10-14	34	229035	14.84	2.55	9.86	19.83
15-19	61	234277	26.04	3.33	19.50	32.57
20-24	91	235008	38.72	4.06	30.77	46.68
25-29	83	228698	36.29	3.98	28.49	44.10
30-39	142	467993	30.34	2.55	25.35	35.33
40-59	208	923998	22.51	1.56	19.45	25.57
60+	80	455284	17.57	1.96	13.72	21.42
Unknown	6					

Cryptosporidiosis: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	11	154086	7.14	2.15	2.92	11.36
Palliser	3	99768	3.01	1.74	-0.40	6.41
Calgary	28	1149491	2.44	0.46	1.53	3.34
David Thompson	21	290093	7.24	1.58	4.14	10.34
East Central	5	110221	4.54	2.03	0.56	8.51
Capital	13	993921	1.31	0.36	0.60	2.02
Aspen	5	176184	2.84	1.27	0.35	5.33
Peace Country	17	133170	12.77	3.10	6.70	18.83
Northern Lights	1	71850	1.39	1.39	-1.34	4.12
Total	**104**	**3,178,784**	**3.27**	**0.32**	**2.64**	**3.90**

Cryptosporidiosis: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	93	2968536	3.1	0.32
2001	446	3022891	14.8	0.70
2002	130	3086646	4.2	0.37
2003	111	3134337	3.5	0.34
2004	104	3178784	3.3	0.32

Cryptosporidiosis: 2004 Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	3	40396	7.43	4.29	-0.98	15.83
1-4	32	156338	20.47	3.62	13.38	27.56
5-9	19	208009	9.13	2.10	5.03	13.24
10-14	8	229035	3.49	1.23	1.07	5.91
15-19	8	234277	3.41	1.21	1.05	5.78
20-24	13	235008	5.53	1.53	2.52	8.54
25-29	3	228698	1.31	0.76	-0.17	2.80
30-39	9	467993	1.92	0.64	0.67	3.18
40-59	7	923998	0.76	0.29	0.20	1.32
60+	2	455284	0.44	0.31	-0.17	1.05

Cyclosporiasis: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	0	2968536	0.00	0.00
2001	0	3022891	0.00	0.00
2002	1	3086646	0.03	0.03
2003	1	3134337	0.03	0.03
2004	1	3178784	0.03	0.03

E. coli O157:H7: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	28	154086	18.17	3.43	11.44	24.90
Palliser	7	99768	7.02	2.65	1.82	12.21
Calgary	153	1149491	13.31	1.08	11.20	15.42
David Thompson	17	290093	5.86	1.42	3.07	8.65
East Central	7	110221	6.35	2.40	1.65	11.06
Capital	59	993921	5.94	0.77	4.42	7.45
Aspen	7	176184	3.97	1.50	1.03	6.92
Peace Country	10	133170	7.51	2.37	2.86	12.16
Northern Lights	0	71850	0.00	0.00	0.00	0.00
Total	**288**	**3,178,784**	**9.06**	**0.53**	**8.01**	**10.11**

E. coli O157:H7: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	326	2968536	11.0	0.61
2001	288	3022891	9.5	0.56
2002	262	3086646	8.5	0.52
2003	187	3134337	6.0	0.44
2004	288	3178784	9.1	0.53

E. coli O157:H7: 2004 Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	1	40396	2.48	2.48	-2.38	7.33
1-4	42	156338	26.86	4.14	18.74	34.99
5-9	28	208009	13.46	2.54	8.48	18.45
10-14	26	229035	11.35	2.23	6.99	15.72
15-19	42	234277	17.93	2.77	12.51	23.35
20-24	30	235008	12.77	2.33	8.20	17.33
25-29	19	228698	8.31	1.91	4.57	12.04
30-39	29	467993	6.20	1.15	3.94	8.45
40-59	39	923998	4.22	0.68	2.90	5.55
60+	32	455284	7.03	1.24	4.59	9.46

Giardiasis: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	11	154086	7.14	2.15	2.92	11.36
Palliser	6	99768	6.01	2.46	1.20	10.83
Calgary	272	1149491	23.66	1.43	20.85	26.47
David Thompson	30	290093	10.34	1.89	6.64	14.04
East Central	7	110221	6.35	2.40	1.65	11.06
Capital	111	993921	11.17	1.06	9.09	13.25
Aspen	21	176184	11.92	2.60	6.82	17.02
Peace Country	15	133170	11.26	2.91	5.56	16.96
Northern Lights	7	71850	9.74	3.68	2.53	16.96
Total	**480**	**3,178,784**	**15.10**	**0.69**	**13.75**	**16.45**

Giardiasis: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	505	2968536	17.0	0.76
2001	485	3022891	16.0	0.73
2002	446	3086646	14.4	0.68
2003	421	3134337	13.4	0.65
2004	480	3178784	15.1	0.69

Giardiasis: 2004 Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	15	40396	37.13	9.59	18.34	55.92
1-4	92	156338	58.85	6.13	46.83	70.87
5-9	39	208009	18.75	3.00	12.87	24.63
10-14	28	229035	12.23	2.31	7.70	16.75
15-19	15	234277	6.40	1.65	3.16	9.64
20-24	42	235008	17.87	2.76	12.47	23.28
25-29	43	228698	18.80	2.87	13.18	24.42
30-39	68	467993	14.53	1.76	11.08	17.98
40-59	100	923998	10.82	1.08	8.70	12.94
60+	38	455284	8.35	1.35	5.69	11.00

Hepatitis A: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	2	154086	1.30	0.92	-0.50	3.10
Palliser	0	99768	0.00	0.00	0.00	0.00
Calgary	21	1149491	1.83	0.40	1.05	2.61
David Thompson	6	290093	2.07	0.84	0.41	3.72
East Central	2	110221	1.81	1.28	-0.70	4.33
Capital	29	993921	2.92	0.54	1.86	3.98
Aspen	5	176184	2.84	1.27	0.35	5.33
Peace Country	1	133170	0.75	0.75	-0.72	2.22
Northern Lights	1	71850	1.39	1.39	-1.34	4.12
Total	**67**	**3,178,784**	**2.11**	**0.26**	**1.60**	**2.61**

Hepatitis A: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	44	2968536	1.5	0.22
2001	40	3022891	1.3	0.21
2002	53	3086646	1.7	0.24
2003	31	3134337	1.0	0.18
2004	67	3178784	2.1	0.26

Hepatitis A: 2004 Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	0	40396	0.00	0.00	0.00	0.00
1-4	1	156338	0.64	0.64	-0.61	1.89
5-9	3	208009	1.44	0.83	-0.19	3.07
10-14	10	229035	4.37	1.38	1.66	7.07
15-19	4	234277	1.71	0.85	0.03	3.38
20-24	7	235008	2.98	1.13	0.77	5.19
25-29	8	228698	3.50	1.24	1.07	5.92
30-39	8	467993	1.71	0.60	0.52	2.89
40-59	20	923998	2.16	0.48	1.22	3.11
60+	6	455284	1.32	0.54	0.26	2.37

Listeriosis: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	0	154086	0.00	0.00	0.00	0.00
Palliser	0	99768	0.00	0.00	0.00	0.00
Calgary	2	1149491	0.17	0.12	-0.07	0.42
David Thompson	1	290093	0.34	0.34	-0.33	1.02
East Central	0	110221	0.00	0.00	0.00	0.00
Capital	2	993921	0.20	0.14	-0.08	0.48
Aspen	1	176184	0.57	0.57	-0.54	1.68
Peace Country	0	133170	0.00	0.00	0.00	0.00
Northern Lights	0	71850	0.00	0.00	0.00	0.00
Total	**6**	**3,178,784**	**0.19**	**0.08**	**0.04**	**0.34**

Listeriosis: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	1	2968536	0.0	0.03
2001	11	3022891	0.4	0.11
2002	5	3086646	0.2	0.07
2003	10	3134337	0.3	0.10
2004	6	3178784	0.2	0.08

Listeriosis: 2004 Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	1	40396	2.48	2.48	-2.38	7.33
1-4	0	156338	0.00	0.00	0.00	0.00
5-9	0	208009	0.00	0.00	0.00	0.00
10-14	0	229035	0.00	0.00	0.00	0.00
15-19	1	234277	0.43	0.43	-0.41	1.26
20-24	0	235008	0.00	0.00	0.00	0.00
25-29	1	228698	0.44	0.44	-0.42	1.29
30-39	0	467993	0.00	0.00	0.00	0.00
40-59	1	923998	0.11	0.11	-0.10	0.32
60+	2	455284	0.44	0.31	-0.17	1.05

Salmonellosis: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	29	154086	18.82	3.49	11.97	25.67
Palliser	21	99768	21.05	4.59	12.05	30.05
Calgary	251	1149491	21.84	1.38	19.13	24.54
David Thompson	85	290093	29.30	3.18	23.07	35.53
East Central	16	110221	14.52	3.63	7.40	21.63
Capital	198	993921	19.92	1.42	17.15	22.70
Aspen	23	176184	13.05	2.72	7.72	18.39
Peace Country	25	133170	18.77	3.75	11.41	26.13
Northern Lights	9	71850	12.53	4.18	4.34	20.71
Total	**657**	**3,178,784**	**20.67**	**0.81**	**19.09**	**22.25**

Salmonellosis: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	800	2968536	26.9	0.95
2001	923	3022891	30.5	1.00
2002	841	3086646	27.2	0.94
2003	717	3134337	22.9	0.85
2004	657	3178784	20.7	0.81

Salmonellosis: 2004 Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	29	40396	71.79	13.33	45.67	97.91
1-4	86	156338	55.01	5.93	43.39	66.63
5-9	52	208009	25.00	3.47	18.20	31.79
10-14	26	229035	11.35	2.23	6.99	15.72
15-19	39	234277	16.65	2.67	11.42	21.87
20-24	56	235008	23.83	3.18	17.59	30.07
25-29	68	228698	29.73	3.61	22.67	36.80
30-39	78	467993	16.67	1.89	12.97	20.37
40-59	157	923998	16.99	1.36	14.33	19.65
60+	66	455284	14.50	1.78	11.00	17.99

Shigellosis: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	7	154086	4.54	1.72	1.18	7.91
Palliser	0	99768	0.00	0.00	0.00	0.00
Calgary	51	1149491	4.44	0.62	3.22	5.65
David Thompson	6	290093	2.07	0.84	0.41	3.72
East Central	0	110221	0.00	0.00	0.00	0.00
Capital	32	993921	3.22	0.57	2.10	4.34
Aspen	0	176184	0.00	0.00	0.00	0.00
Peace Country	3	133170	2.25	1.30	-0.30	4.80
Northern Lights	0	71850	0.00	0.00	0.00	0.00
Total	**99**	**3,178,784**	**3.11**	**0.31**	**2.50**	**3.73**

Shigellosis: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	117	2968536	3.9	0.36
2001	127	3022891	4.2	0.37
2002	107	3086646	3.5	0.34
2003	116	3134337	3.7	0.34
2004	99	3178784	3.1	0.31

Shigellosis: 2004 Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	0	40396	0.00	0.00	0.00	0.00
1-4	9	156338	5.76	1.92	2.00	9.52
5-9	4	208009	1.92	0.96	0.04	3.81
10-14	3	229035	1.31	0.76	-0.17	2.79
15-19	3	234277	1.28	0.74	-0.17	2.73
20-24	6	235008	2.55	1.04	0.51	4.60
25-29	18	228698	7.87	1.86	4.23	11.51
30-39	17	467993	3.63	0.88	1.91	5.36
40-59	26	923998	2.81	0.55	1.73	3.90
60+	13	455284	2.86	0.79	1.30	4.41

Typhoid: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	0	154086	0.00	0.00	0.00	0.00
Palliser	0	99768	0.00	0.00	0.00	0.00
Calgary	6	1149491	0.52	0.21	0.10	0.94
David Thompson	0	290093	0.00	0.00	0.00	0.00
East Central	0	110221	0.00	0.00	0.00	0.00
Capital	2	993921	0.20	0.14	-0.08	0.48
Aspen	0	176184	0.00	0.00	0.00	0.00
Peace Country	0	133170	0.00	0.00	0.00	0.00
Northern Lights	0	71850	0.00	0.00	0.00	0.00
Total	**8**	**3,178,784**	**0.25**	**0.09**	**0.08**	**0.43**

Typhoid: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	9	2968536	0.3	0.10
2001	5	3022891	0.2	0.07
2002	8	3086646	0.3	0.09
2003	15	3134337	0.5	0.12
2004	8	3178784	0.3	0.09

Paratyphoid: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	5	2968536	0.2	0.08
2001	6	3022891	0.2	0.08
2002	3	3086646	0.1	0.06
2003	2	3134337	0.1	0.05
2004	3	3178784	0.1	0.05

Typhoid: 2004 Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	0	40396	0.00	0.00	0.00	0.00
1-4	0	156338	0.00	0.00	0.00	0.00
5-9	4	208009	1.92	0.96	0.04	3.81
10-14	2	229035	0.87	0.62	-0.34	2.08
15-19	0	234277	0.00	0.00	0.00	0.00
20-24	1	235008	0.43	0.43	-0.41	1.26
25-29	0	228698	0.00	0.00	0.00	0.00
30-39	0	467993	0.00	0.00	0.00	0.00
40-59	1	923998	0.11	0.11	-0.10	0.32
60+	0	455284	0.00	0.00	0.00	0.00

Vibrio parahaemolyticus: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	9	2968536	0.3	0.10
2001	1	3022891	0.0	0.03
2002	10	3086646	0.3	0.10
2003	4	3134337	0.1	0.06
2004	5	3178784	0.2	0.07

Yersiniosis: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	3	154086	1.95	1.12	-0.26	4.15
Palliser	2	99768	2.00	1.42	-0.77	4.78
Calgary	52	1149491	4.52	0.63	3.29	5.75
David Thompson	1	290093	0.34	0.34	-0.33	1.02
East Central	0	110221	0.00	0.00	0.00	0.00
Capital	16	993921	1.61	0.40	0.82	2.40
Aspen	0	176184	0.00	0.00	0.00	0.00
Peace Country	2	133170	1.50	1.06	-0.58	3.58
Northern Lights	1	71850	1.39	1.39	-1.34	4.12
Total	**77**	**3,178,784**	**2.42**	**0.28**	**1.88**	**2.96**

Yersiniosis: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	68	2968536	2.3	0.28
2001	62	3022891	2.1	0.26
2002	71	3086646	2.3	0.27
2003	72	3134337	2.3	0.27
2004	77	3178784	2.4	0.28

Yersiniosis: 2004 Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	2	40396	4.95	3.50	-1.91	11.81
1-4	12	156338	7.68	2.22	3.33	12.02
5-9	7	208009	3.37	1.27	0.87	5.86
10-14	5	229035	2.18	0.98	0.27	4.10
15-19	2	234277	0.85	0.60	-0.33	2.04
20-24	5	235008	2.13	0.95	0.26	3.99
25-29	4	228698	1.75	0.87	0.03	3.46
30-39	9	467993	1.92	0.64	0.67	3.18
40-59	18	923998	1.95	0.46	1.05	2.85
60+	13	455284	2.86	0.79	1.30	4.41

Environmental and Zoonotic Illnesses

Brucellosis: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	0	2968536	0.00	0.00
2001	0	3022891	0.00	0.00
2002	1	3086646	0.03	0.03
2003	0	3134337	0.00	0.00
2004	2	3178784	0.06	0.04

Dengue Fever: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	0	2968536	0.0	0.00
2001	1	3022891	0.0	0.03
2002	7	3086646	0.2	0.09
2003	1	3134337	0.0	0.01
2004	1	3178784	0.0	0.03

Hantavirus: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	1	2968536	0.0	0.03
2001	2	3022891	0.1	0.05
2002	4	3086646	0.1	0.06
2003	0	3134337	0.0	0.00
2004	1	3178784	0.0	0.03

Legionellosis: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	2	2968536	0.07	0.05
2001	1	3022891	0.03	0.03
2002	1	3086646	0.03	0.03
2003	2	3134337	0.06	0.05
2004	1	3178784	0.03	0.03

Lyme Disease: Alberta Cases and Rates by Year of Onset

Year	Cases	Population	Rate	std error
2000	0	2968536	0.00	0.00
2001	2	3022891	0.07	0.05
2002	3	3086646	0.10	0.06
2003	1	3134337	0.03	0.03
2004	2	3178784	0.06	0.04

Malaria: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	0	154086	0.00	0.00	0.00	0.00
Palliser	1	99768	1.00	1.00	-0.96	2.97
Calgary	21	1149491	1.83	0.40	1.05	2.61
David Thompson	0	290093	0.00	0.00	0.00	0.00
East Central	0	110221	0.00	0.00	0.00	0.00
Capital	8	993921	0.80	0.28	0.25	1.36
Aspen	1	176184	0.57	0.57	-0.54	1.68
Peace Country	0	133170	0.00	0.00	0.00	0.00
Northern Lights	1	71850	1.39	1.39	-1.34	4.12
Total	**32**	**3,178,784**	**1.01**	**0.18**	**0.66**	**1.36**

Malaria: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	24	2968536	0.8	0.17
2001	36	3022891	1.2	0.20
2002	26	3086646	0.8	0.17
2003	45	3134337	1.4	0.21
2004	32	3178784	1.0	0.18

Malaria: 2004 Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	0	40396	0.00	0.00	0.00	0.00
1-4	1	156338	0.64	0.64	-0.61	1.89
5-9	3	208009	1.44	0.83	-0.19	3.07
10-14	0	229035	0.00	0.00	0.00	0.00
15-19	0	234277	0.00	0.00	0.00	0.00
20-24	1	235008	0.43	0.43	-0.41	1.26
25-29	4	228698	1.75	0.87	0.03	3.46
30-39	8	467993	1.71	0.60	0.52	2.89
40-59	13	923998	1.41	0.39	0.64	2.17
60+	2	455284	0.44	0.31	-0.17	1.05

Q Fever: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	1	2968536	0.0	0.03
2001	0	3022891	0.0	0.00
2002	6	3086646	0.2	0.08
2003	3	3134337	0.1	0.06
2004	4	3178784	0.1	0.06

Rickettsial Infections: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	1	2968536	0.03	0.03
2001	1	3022891	0.03	0.03
2002	1	3086646	0.03	0.03
2003	2	3134337	0.06	0.05
2004	2	3178784	0.06	0.04

West Nile Infection: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	0	2968536	0.00	0.00
2001	0	3022891	0.00	0.00
2002	0	3086646	0.00	0.00
2003	224	3134337	7.15	0.48
2004	1	3178784	0.03	0.03

Sexually Transmitted Infections

Chlamydia: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	384	154086	249.2	12.70	224.32	274.11
Palliser	218	99768	218.5	14.78	189.53	247.48
Calgary	2580	1149491	224.4	4.41	215.80	233.10
David Thompson	772	290093	266.1	9.57	247.37	284.87
East Central	211	110221	191.4	13.17	165.63	217.24
Capital	2799	993921	281.6	5.32	271.19	292.03
Aspen	456	176184	258.8	12.10	235.10	282.55
Peace Country	452	133170	339.4	15.94	308.18	370.65
Northern Lights	370	71850	515.0	26.70	462.62	567.30
Unknown	97					
Total	**8339**	**3,178,784**	**259.3**	**2.85**	**253.69**	**264.87**

Chlamydia: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error	95% CI Lower	95% CI Upper
2000	6029	2968536	203.1	2.61	197.98	209.22
2001	6485	3022891	214.5	2.66	209.31	219.75
2002	7356	3086646	238.3	2.78	232.88	243.76
2003	7902	3134337	252.1	2.83	246.56	257.66
2004	8339	3178784	262.3	2.87	256.71	267.96

Chlamydia: 2004 Cases and Rates for Males by Age Group

Males Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<15	2	324969	0.6	0.44	-0.24	1.47
15-19	384	119963	320.1	16.31	288.13	352.06
20-24	1203	118433	1015.8	29.14	958.66	1072.87
25-29	655	114934	569.9	22.20	526.37	613.41
30-39	336	234259	143.4	7.82	128.11	158.76
40-59	154	465854	33.1	2.66	27.84	38.28
60+	6	210360	2.9	1.16	0.57	5.13
Unknown	2					

Chlamydia: 2004 Cases and Rates for Females by Age Group

Females Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<15	62	308809	20.1	2.55	15.08	25.07
15-19	2109	114314	1844.9	39.80	1766.91	1922.93
20-24	2255	116575	1934.4	40.34	1855.31	2013.44
25-29	760	113764	668.0	24.15	620.71	715.39
30-39	347	233734	148.5	7.96	132.85	164.07
40-59	62	458144	13.5	1.72	10.16	16.90
60+	2	244924	0.8	0.58	-0.32	1.95

Gonorrheal Infection: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	14	154086	9.1	2.43	4.33	13.85
Palliser	26	99768	26.1	5.11	16.04	36.08
Calgary	300	1149491	26.1	1.51	23.15	29.05
David Thompson	91	290093	31.4	3.29	24.93	37.81
East Central	9	110221	8.2	2.72	2.83	13.50
Capital	715	993921	71.9	2.69	66.67	77.21
Aspen	45	176184	25.5	3.81	18.08	33.00
Peace Country	73	133170	54.8	6.41	42.25	67.39
Northern Lights	83	71850	115.5	12.67	90.68	140.36
Unknown	20					
Total	**1376**	**3,178,784**	**42.7**	**1.16**	**40.39**	**44.93**

Gonorrheal Infection: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error	95% CI Lower	95% CI Upper
2000	587	2968536	19.8	0.82	18.17	21.37
2001	794	3022891	26.3	0.93	24.44	28.09
2002	978	3086646	31.7	1.01	29.70	33.67
2003	1035	3134337	33.0	1.03	31.01	35.03
2004	1376	3178784	43.3	1.17	41.00	45.57

Gonorrheal Infection: 2004 Cases and Rates for Males by Age Group

Males Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<15	2	324969	0.6	0.44	-0.24	1.47
15-19	113	119963	94.2	8.86	76.84	111.56
20-24	219	118433	184.9	12.48	160.45	209.38
25-29	164	114934	142.7	11.13	120.87	164.51
30-39	221	234259	94.3	6.34	81.91	106.77
40-59	136	465854	29.2	2.50	24.29	34.10
60+	12	210360	5.7	1.65	2.48	8.93

1 unknown gender

Gonorrheal Infection: 2004 Cases and Rates for Females by Age Group

Females Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<15	14	308809	4.5	1.21	2.16	6.91
15-19	201	114314	175.8	12.39	151.54	200.12
20-24	177	116575	151.8	11.40	129.48	174.19
25-29	63	113764	55.4	6.98	41.71	69.05
30-39	37	233734	15.8	2.60	10.73	20.93
40-59	15	458144	3.3	0.85	1.62	4.93
60+	1	244924	0.4	0.41	-0.39	1.21

Infectious Syphilis: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	0	154086	0.0	0.00	0.00	0.00
Palliser	0	99768	0.0	0.00	0.00	0.00
Calgary	14	1149491	1.2	0.33	0.58	1.86
David Thompson	2	290093	0.7	0.49	-0.27	1.64
East Central	0	110221	0.0	0.00	0.00	0.00
Capital	53	993921	5.3	0.73	3.90	6.77
Aspen	2	176184	1.1	0.80	-0.44	2.71
Peace Country	3	133170	2.3	1.30	-0.30	4.80
Northern Lights	0	71850	0.0	0.00	0.00	0.00
Total	**74**	**3,178,784**	**2.3**	**0.27**	**1.80**	**2.86**

Infectious Syphilis: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error	95% CI Lower	95% CI Upper
2000	15	2968536	0.5	0.13	0.25	0.76
2001	23	3022891	0.8	0.16	0.45	1.07
2002	14	3086646	0.5	0.12	0.22	0.69
2003	43	3134337	1.4	0.21	0.96	1.78
2004	74	3178784	2.3	0.27	1.80	2.86

Infectious Syphilis: 2004 Cases and Rates for Males by Age Group

Males Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<15	0	324969	0.0	0.00	0.00	0.00
15-19	2	119963	1.7	1.18	-0.64	3.98
20-24	8	118433	6.8	2.39	2.07	11.44
25-29	5	114934	4.4	1.95	0.54	8.16
30-39	14	234259	6.0	1.60	2.85	9.11
40-59	27	465854	5.8	1.12	3.61	7.98
60+	2	210360	1.0	0.67	-0.37	2.27

Infectious Syphilis: 2004 Cases and Rates for Females by Age Group

Females Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<15	0	308809	0.0	0.00	0.00	0.00
15-19	3	114314	2.6	1.52	-0.35	5.59
20-24	2	116575	1.7	1.21	-0.66	4.09
25-29	4	113764	3.5	1.76	0.07	6.96
30-39	4	233734	1.7	0.86	0.03	3.39
40-59	2	458144	0.4	0.31	-0.17	1.04
60+	1	244924	0.4	0.41	-0.39	1.21

Mucopurulent Cervicitis: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	2	154086	1.3	0.92	-0.50	3.10
Palliser	2	99768	2.0	1.42	-0.77	4.78
Calgary	76	1149491	6.6	0.76	5.13	8.10
David Thompson	14	290093	4.8	1.29	2.30	7.35
East Central	3	110221	2.7	1.57	-0.36	5.80
Capital	57	993921	5.7	0.76	4.25	7.22
Aspen	6	176184	3.4	1.39	0.68	6.13
Peace Country	1	133170	0.8	0.75	-0.72	2.22
Northern Lights	50	71850	69.6	9.84	50.31	88.87
Unknown	6					
Total	**211**	**3,178,784**	**6.6**	**0.46**	**5.74**	**7.53**

Mucopurulent Cervicitis: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error	95% CI Lower	95% CI Upper
2000	703	2968536	23.7	0.89	21.93	25.43
2001	651	3022891	21.5	0.84	19.88	23.19
2002	758	3086646	24.6	0.89	22.81	26.31
2003	761	3134337	24.3	0.88	22.55	26.00
2004	217	3178784	6.8	0.46	5.92	7.73

Mucopurulent Cervicitis: 2004 Cases and Rates for Females by Age Group

Females Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<15	1	324969	0.3	0.31	-0.30	0.91
15-19	47	119963	39.2	5.71	27.98	50.38
20-24	88	118433	74.3	7.92	58.78	89.82
25-29	35	114934	30.5	5.15	20.36	40.54
30-39	31	234259	13.2	2.38	8.58	17.89
40-59	14	465854	3.0	0.80	1.43	4.58
60+	0	210360	0.0	0.00	0.00	0.00
Unknown	1					

Non-Gonococcal Urethritis: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	21	154086	13.6	2.97	7.80	19.46
Palliser	14	99768	14.0	3.75	6.68	21.38
Calgary	413	1149491	35.9	1.77	32.46	39.39
David Thompson	89	290093	30.7	3.25	24.31	37.05
East Central	20	110221	18.1	4.06	10.19	26.10
Capital	578	993921	58.2	2.42	53.41	62.89
Aspen	44	176184	25.0	3.76	17.60	32.35
Peace Country	40	133170	30.0	4.75	20.73	39.34
Northern Lights	37	71850	51.5	8.46	34.91	68.09
Total	**1256**	**3,178,784**	**39.5**	**1.11**	**37.33**	**41.70**

Non-Gonococcal Urethritis: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error	95% CI Lower	95% CI Upper
2000	1874	2968536	63.1	1.46	60.27	65.99
2001	1912	3022891	63.3	1.45	60.42	66.08
2002	2072	3086646	67.1	1.47	64.24	70.02
2003	2225	3134337	71.0	1.50	68.04	73.94
2004	1289	3178784	40.6	1.13	38.34	42.76

Non-Gonococcal Urethritis: 2004 Cases and Rates for Males by Age Group

Males Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<15	119	324969	36.6	3.36	30.04	43.20
15-19	381	119963	317.6	16.25	285.76	349.44
20-24	279	118433	235.6	14.09	207.97	263.19
25-29	260	114934	226.2	14.01	198.75	253.68
30-39	232	234259	99.0	6.50	86.30	111.77
40-59	14	465854	3.0	0.80	1.43	4.58
60+	4	210360	1.9	0.95	0.04	3.76

Syndromic Illnesses

Haemolytic Uremic Syndrome: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	1	154086	0.65	0.65	-0.62	1.92
Palliser	0	99768	0.00	0.00	0.00	0.00
Calgary	9	1149491	0.78	0.26	0.27	1.29
David Thompson	0	290093	0.00	0.00	0.00	0.00
East Central	0	110221	0.00	0.00	0.00	0.00
Capital	2	993921	0.20	0.14	-0.08	0.48
Aspen	0	176184	0.00	0.00	0.00	0.00
Peace Country	0	133170	0.00	0.00	0.00	0.00
Northern Lights	0	71850	0.00	0.00	0.00	0.00
Total	**12**	**3,178,784**	**0.38**	**0.11**	**0.16**	**0.59**

Haemolytic Uremic Syndrome: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error
2000	6	2968536	0.2	0.08
2001	5	3022891	0.2	0.07
2002	9	3086646	0.3	0.10
2003	9	3134337	0.3	0.10
2004	12	3178784	0.4	0.11

Haemolytic Uremic Syndrome: 2004 Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	0	40396	0.00	0.00	0.00	0.00
1-4	9	156338	5.76	1.92	2.00	9.52
5-9	1	208009	0.48	0.48	-0.46	1.42
10-14	0	229035	0.00	0.00	0.00	0.00
15-19	1	234277	0.43	0.43	-0.41	1.26
20-24	0	235008	0.00	0.00	0.00	0.00
25-29	1	228698	0.44	0.44	-0.42	1.29
30-39	0	467993	0.00	0.00	0.00	0.00
40-59	0	923998	0.00	0.00	0.00	0.00
60+	0	455284	0.00	0.00	0.00	0.00

Vaccine Preventable Diseases

Influenza A/B: 2004 Laboratory Confirmed Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	202	40396	500.05	35.10	431.26	568.84
1-4	256	156338	163.75	10.23	143.71	183.79
5-9	64	208009	30.77	3.85	23.23	38.30
10-14	82	229035	35.80	3.95	28.05	43.55
15-19	82	234277	35.00	3.86	27.43	42.58
20-44	163	1207474	13.50	1.06	11.43	15.57
45-64	30	770569	3.89	0.71	2.50	5.29
65+	143	332938	42.95	3.59	35.91	49.99

Invasive Haemophillus Influenza Type B (Hib): Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error	95% CI Lower	95% CI Upper
2000	1	2968536	0.0	0.03	-0.03	0.10
2001	2	3022891	0.1	0.05	-0.03	0.16
2002	5	3086646	0.2	0.07	0.02	0.30
2003	5	3134337	0.2	0.07	0.02	0.30
2004	1	3178784	0.0	0.03	-0.03	0.09

Invasive Meningococcal Disease (IMD): 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	1	154086	0.6	0.65	-0.62	1.92
Palliser	0	99768	0.0	0.00	0.00	0.00
Calgary	11	1149491	1.0	0.29	0.39	1.52
David Thompson	0	290093	0.0	0.00	0.00	0.00
East Central	0	110221	0.0	0.00	0.00	0.00
Capital	2	993921	0.2	0.14	-0.08	0.48
Aspen	0	176184	0.0	0.00	0.00	0.00
Peace Country	0	133170	0.0	0.00	0.00	0.00
Northern Lights	0	71850	0.0	0.00	0.00	0.00
Total	**14**	**3,178,784**	**0.4**	**0.12**	**0.21**	**0.67**

Invasive Meningococcal Disease (IMD): Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error	95% CI Lower	95% CI Upper
2000	78	2968536	2.6	0.30	2.04	3.21
2001	62	3022891	2.1	0.26	1.54	2.56
2002	23	3086646	0.7	0.16	0.44	1.05
2003	14	3134337	0.4	0.12	0.21	0.68
2004	14	3178784	0.4	0.12	0.21	0.67

Invasive Meningococcal Disease (IMD): 2004 Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	2	40396	4.95	3.50	-1.91	11.81
1-4	0	156338	0.00	0.00	0.00	0.00
5-9	0	208009	0.00	0.00	0.00	0.00
10-14	0	229035	0.00	0.00	0.00	0.00
15-19	2	234277	0.85	0.60	-0.33	2.04
20-24	3	235008	1.28	0.74	-0.17	2.72
25-29	0	228698	0.00	0.00	0.00	0.00
30-39	3	467993	0.64	0.37	-0.08	1.37
40-59	3	923998	0.32	0.19	-0.04	0.69
60+	1	455284	0.22	0.22	-0.21	0.65

Invasive Pneumococcal Disease (IPD): 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	27	154086	17.5	3.37	10.91	24.13
Palliser	10	99768	10.0	3.17	3.81	16.24
Calgary	115	1149491	10.0	0.93	8.18	11.83
David Thompson	22	290093	7.6	1.62	4.41	10.75
East Central	6	110221	5.4	2.22	1.09	9.80
Capital	123	993921	12.4	1.12	10.19	14.56
Aspen	20	176184	11.4	2.54	6.38	16.33
Peace Country	12	133170	9.0	2.60	3.91	14.11
Northern Lights	13	71850	18.1	5.02	8.26	27.93
Total	**348**	**3,178,784**	**10.9**	**0.59**	**9.80**	**12.10**

Invasive Pneumococcal Disease (IPD): Alberta Cases and Rates by Year of Onset

Year	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
2000	319	2968536	10.7	0.60	9.57	11.93
2001	401	3022891	13.3	0.66	11.97	14.56
2002	355	3086646	11.5	0.61	10.30	12.70
2003	383	3134337	12.2	0.62	11.00	13.44
2004	348	3178784	10.9	0.59	9.80	12.10

Invasive Pneumococcal Disease (IPD): 2004 Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	8	40396	19.80	7.00	6.08	33.53
1-4	37	156338	23.67	3.89	16.04	31.29
5-9	11	208009	5.29	1.59	2.16	8.41
10-14	6	229035	2.62	1.07	0.52	4.72
15-19	5	234277	2.13	0.95	0.26	4.00
20-24	1	235008	0.43	0.43	-0.41	1.26
25-29	9	228698	3.94	1.31	1.36	6.51
30-39	50	467993	10.68	1.51	7.72	13.65
40-59	104	923998	11.26	1.10	9.09	13.42
60+	113	455284	24.82	2.33	20.24	29.40
Unknown	4					

Mumps: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error	95% CI Lower	95% CI Upper
2000	12	2968536	0.4	0.12	0.18	0.63
2001	37	3022891	1.2	0.20	0.83	1.62
2002	171	3086646	5.5	0.42	4.71	6.37
2003	4	3134337	0.1	0.06	0.00	0.25
2004	3	3178784	0.1	0.05	-0.01	0.20

Pertussis: 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	40	154086	26.0	4.10	17.92	34.00
Palliser	6	99768	6.0	2.46	1.20	10.83
Calgary	25	1149491	2.2	0.43	1.32	3.03
David Thompson	221	290093	76.2	5.12	66.14	86.22
East Central	79	110221	71.7	8.06	55.87	87.47
Capital	138	993921	13.9	1.18	11.57	16.20
Aspen	70	176184	39.7	4.75	30.43	49.04
Peace Country	89	133170	66.8	7.08	52.95	80.71
Northern Lights	16	71850	22.3	5.57	11.36	33.18
Total	**684**	**3,178,784**	**21.5**	**0.82**	**19.91**	**23.13**

Pertussis: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error	95% CI Lower	95% CI Upper
2000	453	2968536	15.3	0.72	13.85	16.67
2001	337	3022891	11.1	0.61	9.96	12.34
2002	291	3086646	9.4	0.55	8.34	10.51
2003	340	3134337	10.8	0.59	9.69	12.00
2004	684	3178784	21.5	0.82	19.91	23.13

Pertussis: 2004 Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	62	40396	153.48	19.48	115.31	191.66
1-4	49	156338	31.34	4.48	22.57	40.12
5-9	57	208009	27.40	3.63	20.29	34.52
10-14	230	229035	100.42	6.62	87.45	113.39
15-19	127	234277	54.21	4.81	44.78	63.63
20-24	19	235008	8.08	1.85	4.45	11.72
25-29	12	228698	5.25	1.51	2.28	8.22
30-39	60	467993	12.82	1.66	9.58	16.06
40-59	63	923998	6.82	0.86	5.13	8.50
60+	5	455284	1.10	0.49	0.14	2.06

Rubella: Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error	95% CI Lower	95% CI Upper
2000	5	2968536	0.2	0.08	0.02	0.32
2001	6	3022891	0.2	0.08	0.04	0.36
2002	4	3086646	0.1	0.06	0.00	0.26
2003	2	3134337	0.1	0.05	-0.02	0.15
2004	2	3178784	0.1	0.04	-0.02	0.15

Varicella-zoster (Chickenpox): 2004 RHA Cases and Rates

RHA	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
Chinook	53	154086	34.4	4.72	25.14	43.66
Palliser	69	99768	69.2	8.32	52.85	85.47
Calgary	237	1149491	20.6	1.34	17.99	23.24
David Thompson	73	290093	25.2	2.94	19.39	30.94
East Central	32	110221	29.0	5.13	18.97	39.09
Capital	258	993921	26.0	1.62	22.79	29.12
Aspen	28	176184	15.9	3.00	10.01	21.78
Peace Country	55	133170	41.3	5.57	30.39	52.21
Northern Lights	22	71850	30.6	6.53	17.83	43.41
Total	**827**	**3,178,784**	**26.0**	**0.90**	**24.24**	**27.79**
Unknown	145					

Varicella-zoster (Chickenpox): Alberta Cases and Rates by Year of Onset

Year	Alberta Cases	Population	Alberta Rate	std error	95% CI Lower	95% CI Upper
2000	7186	2968536	242.1	2.85	236.48	247.66
2001	4692	3022891	155.2	2.26	150.78	159.65
2002	2724	3086646	88.3	1.69	84.94	91.56
2003	2379	3134337	75.9	1.56	72.85	78.95
2004	963	3178784	30.3	0.98	28.38	32.21

Varicella-zoster (Chickenpox): 2004 Cases and Rates by Age Group

Age Group	Cases	Population	Rate	std error	95% CI Lower	95% CI Upper
<1	62	40396	153.48	19.48	115.31	191.66
1-4	290	156338	185.50	10.88	164.17	206.83
5-9	452	208009	217.30	10.21	197.29	237.31
10-14	71	229035	31.00	3.68	23.79	38.21
15-19	17	234277	7.26	1.76	3.81	10.71
20-24	9	235008	3.83	1.28	1.33	6.33
25-29	18	228698	7.87	1.86	4.23	11.51
30-39	22	467993	4.70	1.00	2.74	6.67
40-59	16	923998	1.73	0.43	0.88	2.58
60+	14	455284	3.08	0.82	1.46	4.69

Glossary of Terms

Glossary of Terms

Acute - referring to a health event with sudden onset.

Airborne transmission - transmission of an infectious agent by particles, dust, or droplet nuclei suspended in the air that are easily drawn into the lungs.

Arthropod vector - insect intermediary in the indirect transmission of infectious agents.

Asymptomatic carrier - A person with an infection that is not apparent throughout its course and or where one appears healthy and without symptoms.

Case - a person in the population identified as having a particular disease, health disorder or condition.

Communicable - an illness that can be transmitted from an infected person, animal or reservoir to a susceptible host, either directly or indirectly.

Direct transmission - direct and essentially immediate transfer of infectious agents. Direct contact includes but is not limited to touching, kissing and or droplet spray on the mucous membranes of the eyes, nose, or mouth.

Droplet transmission - a type of airborne transmission where residues that result from evaporated fluid are emitted from an infected host, suspended in the air and are easily drawn into the lungs.

Endemic - the constant presence of a disease or infectious agent within a given geographic area or a population group.

Enteric diseases - diseases that infect or involve the intestine.

Epidemic - when the observed incidence exceeds the expected incidence.

Fecal oral transmission - transmission of disease through oral consumption of food, water, or objects contaminated by feces.

Incidence rate - the number of new cases of a disease in a defined population, within a specified period of time over the population at risk, during the same time period.

Indirect transmission - includes vehicle borne transmission of disease through inanimate objects or, vector-borne transmission where disease is passed through an animal or arthropod bites or infected materials such as saliva or feces penetrating open skin.

Outbreak - when the observed incidence exceeds the expected incidence.

Pandemic - an epidemic occurring worldwide, or over a very wide area, crossing international boundaries and usually affecting a large number of people.

Rate - a measure of the frequency of occurrence of a disease in a defined population over a specified period of time (frequently refers to incidence rate).

Reservoir – any person, animal, arthropod, plant, soil, or substance, or combination of these, in which an infectious agent normally lives and multiplies, on which it depends primarily for survival and where it reproduces itself in such a manner that it can be transmitted to a susceptible host.

Transmission – any mechanism by which an infectious agent is spread from a source or reservoir to another host.

Zoonotic – An infectious disease transmissible to humans under natural conditions from a vertebrate animal or arthropod vector.